PULP & PAPER

OCTOBER 1958

New — Two-Stage Cooking
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The Outlook for Woodpulp
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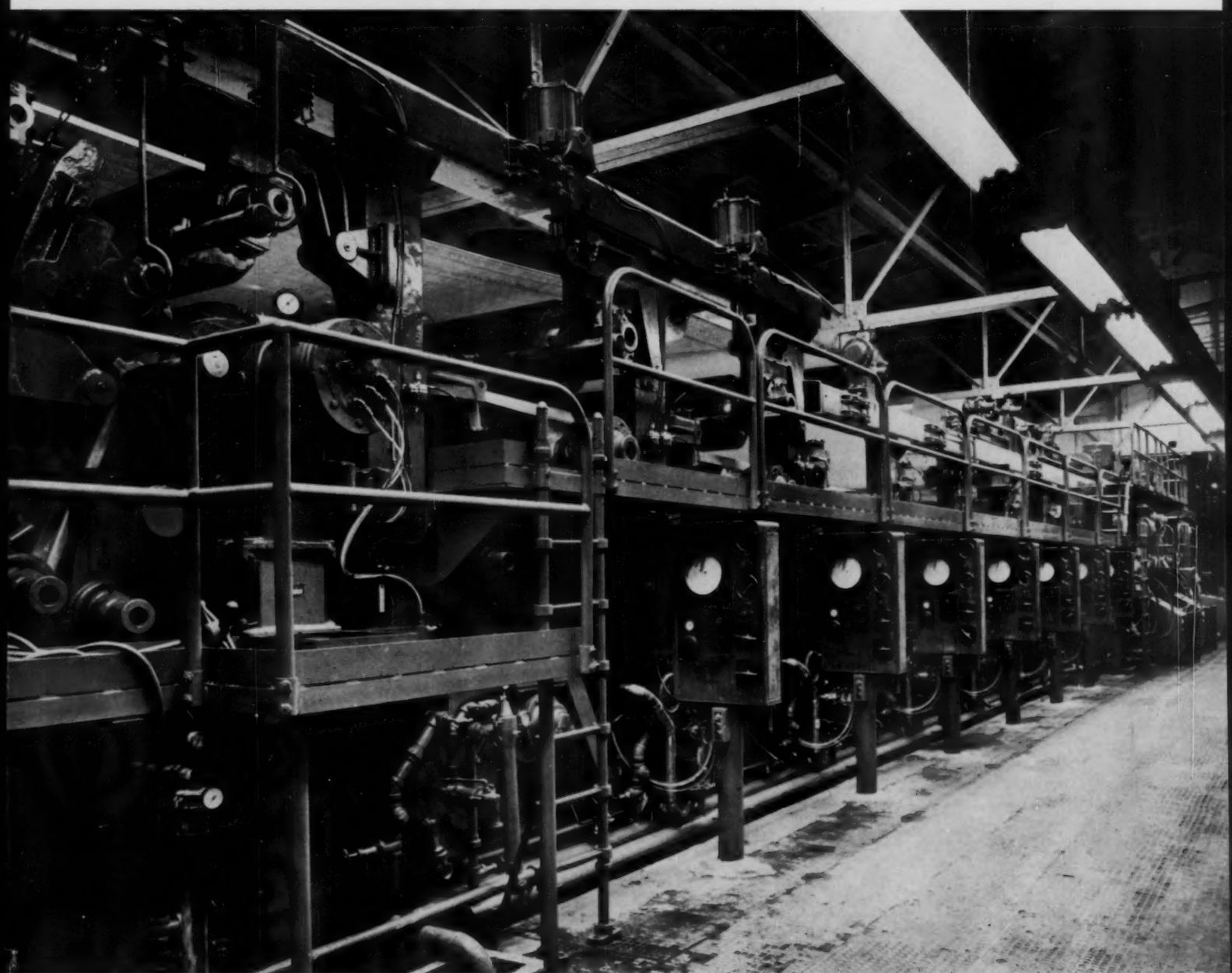
Complete Alberni Expansion
page 76



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"One of genuinely new papermaking developments of 20th century" story on page 60

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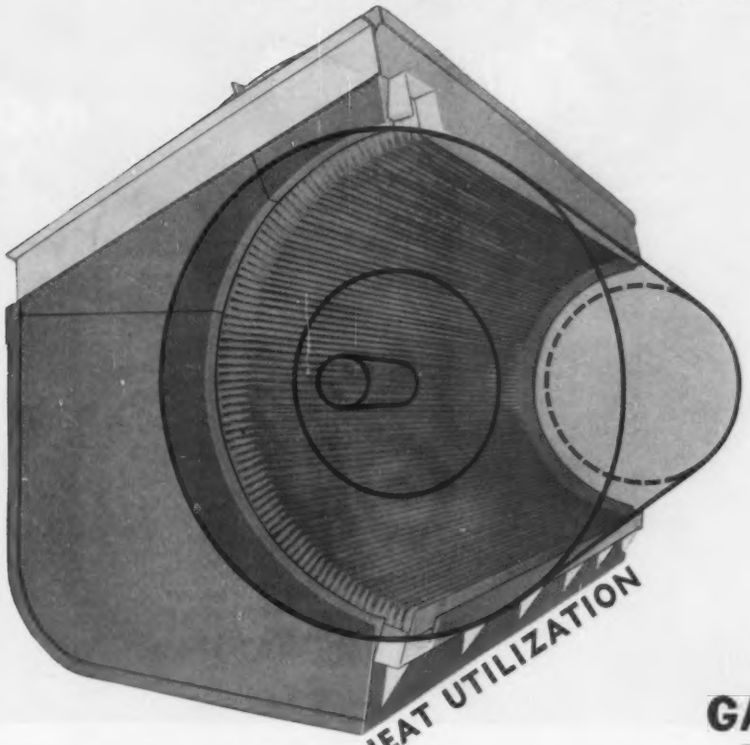

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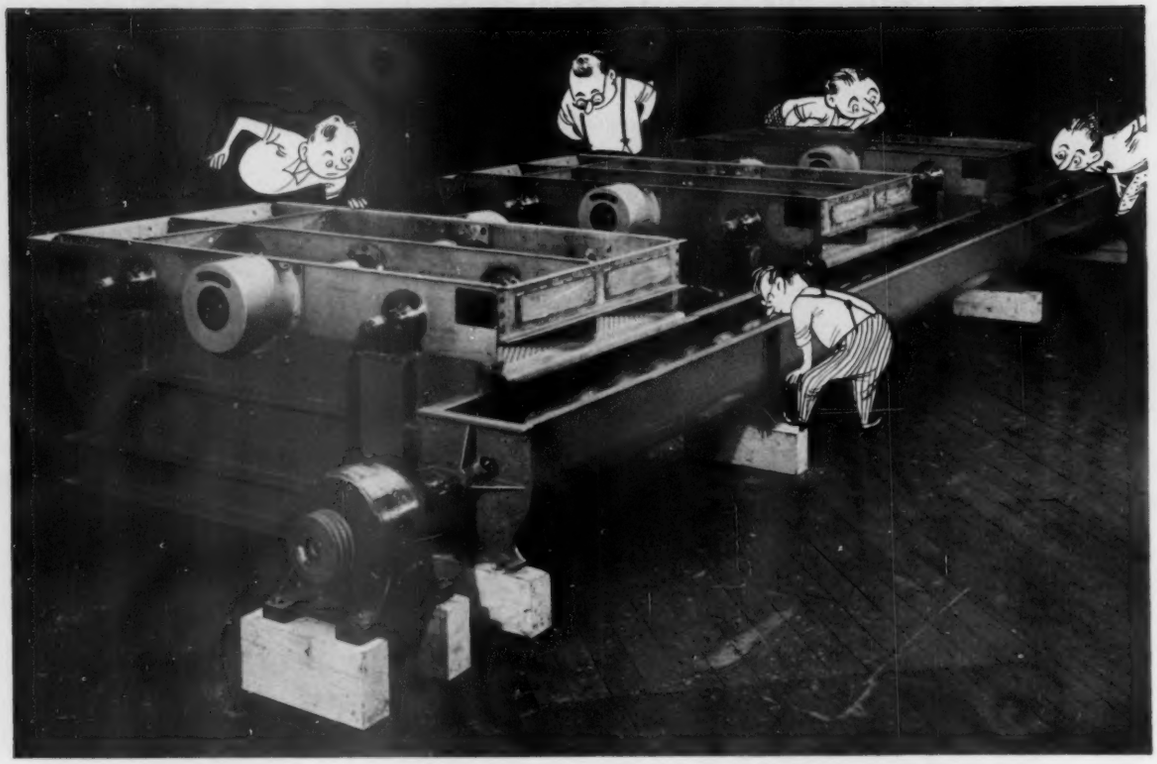

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PULP & PAPER

Reader's Guided Tour

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NUMBER 11

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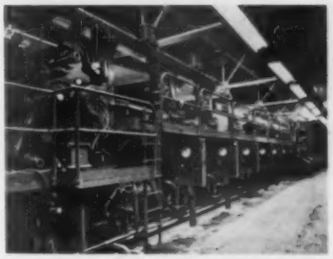
Tools for career guidance; Land preparation in South; Tribute to G. H. Tomlinson

COVER PICTURE

This is first time anything like this has ever been done. There are seven Stevens Formers on Michigan Carton's No. 2 machine, one for every cylinder vat.



Big Advance in Paperboard Making 60

One of the truly important new developments of the 20th Century in papermaking. In an exclusive story, PULP & PAPER's editor, Albert W. Wilson, tells how Michigan Carton Co. made history with a cylinder machine which performs like a Fourdrinier.

Two-Stage Cook Opens New Vistas 56

Highlight of TAPPI's Alkaline Pulping Conference at Hot Springs, Ark. Here are additional facts about Sivola Process, invented in Finland—a bisulfite-soda cooking process followed by standard kraft recovery.

What's the Outlook for Woodpulp? 58

In an article especially written for PULP & PAPER, Lawson Turcotte, president of Puget Pulp and recognized authority, gives an up-to-date picture of situation.

New Pulp Mill Hewed Out of Jungle 55

Champion Paper & Fibre Co. will complete a new market kraft pulp mill 80 miles in wild uplands from Sao Paulo, Brazil, by early 1959. Experts to start it up.

Olin Mathieson's Answer to Recession 68

West Monroe, La., mill halts expansion but turns to new products. Makes No. 4 machine producing fully-pigmented on-machine coated unbleached board.

Major New Wood Use Center is Created 76

At Port Alberni, on Vancouver Island, MacMillan & Bloedel has vastly increased capacity and is now making paper grades on three new machines, as well as adding pulping and bleaching facilities.

CIRCULATION DEPT., 500 Howard St., San Francisco 5, Calif. C. C. Banke, Circ. Mgr. Send subscription orders and changes of address to PULP & PAPER, above address. Include both old and new addresses. **RATES** (including World Review Number): U.S., Canada and Latin America—1 yr., $4; 2 yrs., $6; 3 yrs., $8. Other countries—1 yr., $5; 2 yrs., $8; 3 yrs., $11. Sterling area orders may be sent to: Harold P. deLooze Ltd., 7 St. James Square, Manchester 2, England.

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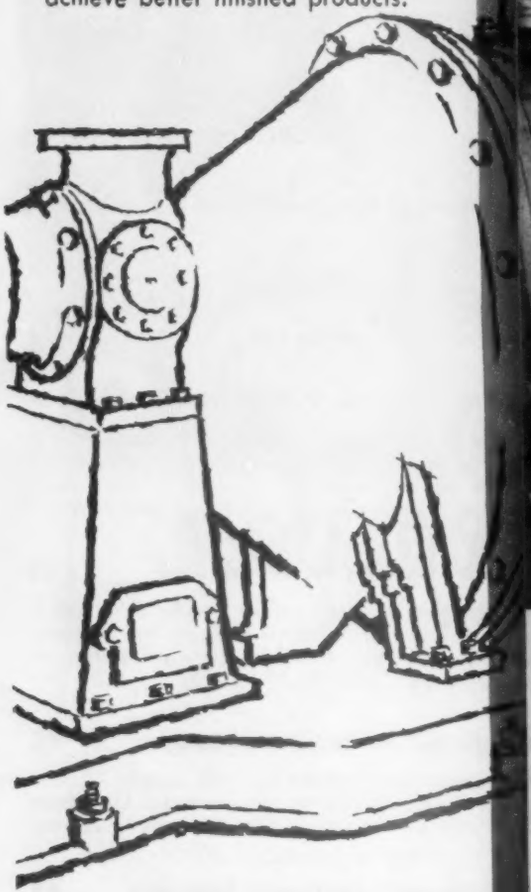

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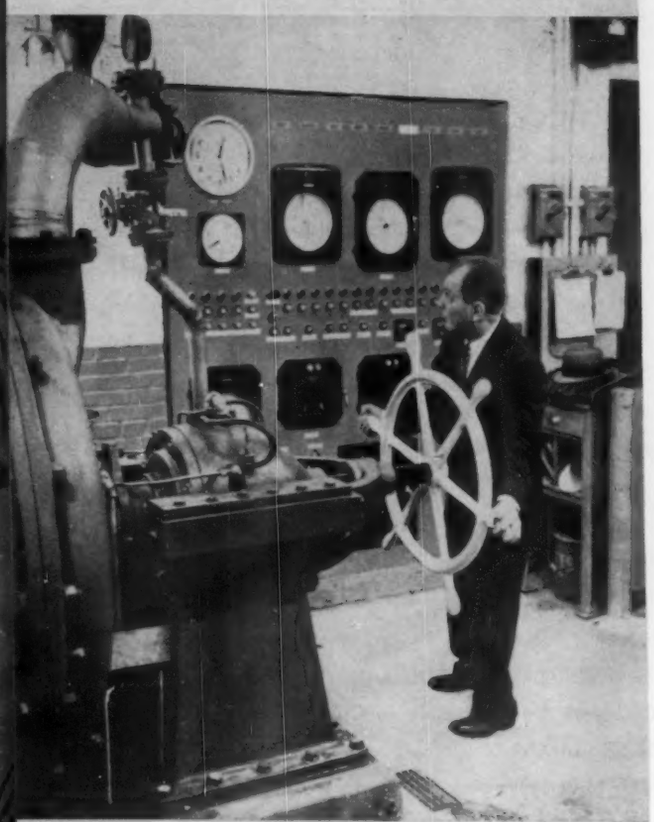

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MILLER FREEMAN PUBLICATIONS

The Editor Reads His Mail

Address letters to The Editor, PULP & PAPER, 1791 Howard St., Chicago 26, Ill.

Proxmire Bill to Build Mill a "Political Hoax"

Springfield, O.

Editor: The lead article in PULP & PAPER, Aug. issue, 1958, entitled "World's Biggest Machine Backed by New Process, but Government is Asked to Build Another Mill to Prove It!", is excellent coverage of a political hoax.

Cold soda pulping from hardwoods for newsprint and publication grades is definitely proven, Senator Proxmire to the contrary, not once but many times. Mr. Wakeman's mill, Coosa River Newsprint Co., is only one example of many such installations. In view of this, and the present soft market situation in newsprint, it appears that Sen. Proxmire's proposal will serve no useful purpose and deserves no consideration.

LEE EBERHARDT
Asst. to President,
The Bauer Bros. Co.

New York City

Editor: My congratulations on the article in August on the manner in which Coosa River Newsprint Co. makes the Proxmire federal paper mill proposal recognizable as another crackpot scheme hatched up in Washington.

C. LESTER HORN
Business Consultant

Oldest Superintendent? 32 Yrs. for Joe Jaskolski

Menasha, Wis.

Editor. I read with interest the article on oldest paper mill superintendents in PULP & PAPER, August, 1958 edition. I believe our former superintendent, Joseph Jaskolski, who retired March 2 this year, established some kind of a record for length of employment with one company. Mr. Jaskolski's home address is 639 Fifth St., Menasha.

He started with the Geo. A. Whiting Paper Co., Menasha, 51 years ago, was promoted to superintendent in July 1925, which would give him 32 years and 6 months as superintendent.

GEO. A. WHITING, President,
Geo. A. Whiting Paper Co.

Award For Whole Division

Madison, Wis.

Editor: In fairness to our staff, and also former staff members who have left, all of whom made important contributions in the advancement of the use of hardwoods for pulp and paper, I would like to clarify your story on page 37 of August, by saying the distinguished service award from the Dept. of Agriculture was given to our Pulp and Paper Division, and not to any individual. It is the highest award given by the Dept. of Agriculture and the first to be presented to a Forest Service unit.

G. H. CHIDESTER
Chief, Div. of Pulp & Paper
U.S. Forest Products Laboratory

German Forestry Director Also Visited Private Forests

—New York City

Editor: In your August 1958 issue, on Page 92, there is a news item that refers to a recent visit of Mr. Walter Mann, Ministerial Director of the West German Forest Service. The article indicates that Mr. Mann's itinerary while in the United States was confined entirely to a visit to national forest areas.

I believe the implication is incorrect since I personally know that Mr. Mann accompanied by Dr. McArdle spent one-half day on the St. Regis woodland operations in south Georgia, and the rest of the day with personnel of the Brunswick Pulp and Paper Co.

PAUL M. DUNN
Technical Director of Forestry
St. Regis Paper Co.

Congrats to Frank Warren

Franklin, Va.

Editor: I have just completed reading your 1958 WORLD REVIEW issue of PULP & PAPER and especially want to congratulate Frank M. Warren for his excellent article asking for a closer understanding between North America and Europe. Mr. Warren has a broad perspective so necessary today. I would like to see more special articles by this gentleman.

FRANK J. WEBSTER
Paper Sales Div., Union Bag-Camp Paper Corp.

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PULP & PAPER # Monthly Report

. . . of significant news and views

General Outlook

INDUSTRY LEADERS EXPRESS OPTIMISM. . . . Some top industry figures appear confident that business is on the upturn. Wesley M. Dixon, pres. of Container Corp. of America, reports that sales of corrugated materials have recently surpassed levels of a year ago. David L. Luke, pres. of West Virginia Pulp & Paper Co., says, "The prospects for increasing volume and higher rates of activity are encouraging." John H. Hinman, chairman of International Paper Co., looks for "a pick-up in volume during the last six months of 1958," and William H. Adams, pres. of St. Regis Paper Co., says St. Regis' unfilled orders have improved continuously since the middle of May, while stocks have moved downward.

OUTLOOK BRIGHTENS FOR NEWSPRINT. . . . Nothing could perk up newsprint more than an increase in advertising. That's just what happened when newspaper general advertising lineage in July showed a 6.6% gain over July, 1957. It was the first month of 1957 to show a gain over the year-earlier period. "There are signs of a definite upturn," said the American Newspaper Publishers Assn., in connection with the report.

PRODUCTION RECORDS BROKEN. . . . Dryden Paper Co., Ltd., Dryden, Ont., broke production records during the week of Aug. 17-23 with production of 3,553 tons of all products. The No. 1 pulp machine was the chief record breaker and produced a new daily high of 419 tons on Aug. 22.

FORESEES OVER-CAPACITY PROBLEMS UNTIL '61, '62 OR '63. . . . George Olmsted Jr., pres. of S. D. Warren Co., Boston, expects it will take at least three years before population increases, improved living standards and new products increase paper demand sufficiently to take up the present slack in capacity. In this issue — for PULP & PAPER readers, Lawson P. Turcotte, pres. of Puget Pulp, analyzes the pulp situation.

PAPERBOARD PRODUCTION HIT HIGHEST LEVEL since Oct., 1957, during week ending Aug. 30, while mills operated at 95% of capacity. Production was 307,590 tons compared with 293,915 the previous week and 290,919 tons a year ago. Stepped-up operations caused first across-the-board boosts in waste paper prices in about a year.

"STUDY FOREIGN EXPANSION as means of increasing profits," advises A. C. Nielsen Jr., pres. of A. C. Nielsen Co., marketing research firm. Surplus plant capacity in some countries, combined with the fact that two-thirds of the world's population remain in dire need of the basic necessities of life, have brought on the present opportunity for selling abroad, he says.

NOTES PICKUP IN ORDERS. . . . Fibreboard Paper Products Corp. has enjoyed a "mildly encouraging" pickup in orders, says William L. Keady, pres. A new leakproof fiberboard package, "Fibrematic," has been successfully market-tested for six months and offers a "large potential tonnage." Mr. Keady says the firm's $50 million expansion program, due for completion by 1962, will "probably be expanded before 1962."

Please turn page for more

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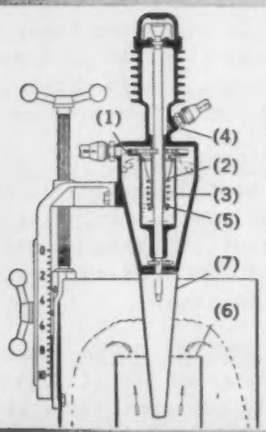

OPERATION

Water under constant pressure spins turbine (1) creating a vortex (2), whose depth is determined by the speed of rotation of the vessel (3). An air stream, introduced at (4), measures, through the bubble-pipe principle, the distance between (5) and the bottom of the vortex, thus determining the degree of consistency of the stock suspension (6) which exerts a friction drag on the whirling sensing element (7).

The heart of the Källe system is the Consistency Indicator pictured at left, a triumph of high-performance engineering. Having only one moving part, the Indicator is extremely rugged and maintenance-free, yet is capable of measuring consistencies between 0.5% and 6% with great accuracy. Information from the Indicator is transmitted to the Källe Controller which automatically adjusts dilution rate to conform with the required consistency...while the Källe Recorder keeps accurate record of dilution volume and consistency rate. The Källe system saves man-hours and improves efficiency in many of the world's leading pulp and fiber plants. Write for full information.

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PULP & PAPER # Monthly Report

. . . of significant news and views

New Mills and Mill Expansions

NAHEOLA MILL MAKES FIRST TEST RUNS. . . . Marathon Southern Corp., div. of American Can Co., is making test runs at its new, $40 million pulp-paper-paperboard mill at Naheola, Ala. Said to be one of the most completely instrumented mills in the nation, the plant is spread over 80 acres in the heart of Marathon's densely-wooded, 1,100-acre holding. The mill will use 200,000 cords of pulpwood annually, about 30% of which will be medium hardwoods.

NEW MACHINE FOR GILBERT. . . . Gilbert Paper Co., Menasha, Wis., announces plans for replacement of its No. 2 paper machine with a new, faster and wider machine, being built principally by Valley Iron Works (story in this issue).

I.P. MACHINE STARTS UP. . . . The new 208 in. Fourdrinier machine at the Hudson River, N.Y., mill of International Paper Co. has started up. It is making high grade machine-coated publication papers.

WILL BUILD IN ARKANSAS. . . . The Charles Murphy Oil Co., Eldorado, Ark., is reported planning to put up a paper mill. The company has 300,000 acres of timberland under management.

BREAK GROUND FOR EXPANSION. . . . Scott Paper Co. broke ground in Sept. for a $10,000,000 office building and large chemical and mechanical research laboratory on a 41-acre site adjoining Philadelphia's International Airport. It will bring together administrative, engineering and research personnel now in different locations in Chester. Completion is scheduled in mid-1960. Thomas B. McCabe, pres., said Scott is also expanding product and market research — the budget "probably to be increased by as much as 100% over the next five years."

FURTHERS PRODUCT DIVERSIFICATION. . . . Publishers' Paper Co., groundwood and sulfite pulp-paper mill at Oregon City, Ore., is installing a kraft bag plant, to use kraft bag paper stock purchased from other mills. S. J. Robinson, vice pres.-gen. mgr., says startup is scheduled about the first of the year.

NEW CONTENDER FOR WORLD'S LARGEST. . . . Crown Zellerbach's St. Francisville, La., printing paper mill has received shipment of the largest supercalender ever made in the United States, according to Appleton Machine Co. It was the first of two, each of them 250-in., 10-roll supercalenders weighing 370 tons. They require 10 railroad cars and 12 trucks for hauling.

SOUTHLAND BEGINS INSTALLATION OF NO. 4. . . . A new $3 million Pusey & Jones newsprint machine with 270 in. wire designed for speeds up to 2500 fpm is being installed at Southland Paper Mills, Lufkin, Texas. The 400 ft. long machine will have a totally enclosed Ross hood, air pressure type headbox.

Other News

SET KRAFT PULP MEETING. . . . The 13th annual Alkaline Pulping Conference, sponsored by TAPPI, is scheduled for the Hotel Robert Meyer, Jacksonville, Fla., Nov. 4-6, 1959.

Please turn page for more

1. Jordans . . . 9 models available, with or without Duotrol automatic plug adjuster. Write for Bulletin 22-SB

2. Gyro-Flote Screen . . . for many pulp and paper mill applications . . . gives rapid, gentle screening action. See Bulletin MB-120

3. Liquid Cyclone . . . centrifugally removes fine particles of foreign matter and heavier than water material. Automatic or manual reject discharge.

4. Magnetic Separator . . . protects pumps, jordan and refiner fillings. Ask for Bulletin MB-113

5. Thickeners . . . modernize your stock thickening, washing and bleaching operations. Couch roll or air couch types available. Write for Bulletin 21-SB

6. Valves . . . highly dependable slide, gate and rotary types, motorized pneumatic, hydraulic or manual operation. Full range of sizes.

7. Classifiner . . . for mixed paper systems. Screens out papermaking fiber, rejects pins, clips, cellophane, rubber, etc. Bulletin MB-107

8. Agitators . . . propellers, chests, pumps, processes, engineered to improve your agitation operating conditions. Bulletin 350.

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PULP & PAPER Monthly Report

... of significant news and views

OUTSTANDING RESULTS FROM HIGH YIELD PULPING. . . . Several northwest mills, including Longview Fibre, Weyerhaeuser at Longview and Crown Zellerbach, Lebanon, Ore., report yields of 65 to 80% in manufacture of corrugating medium.

SETTLING BASIN RECOVERS 50% OF LIME SOLIDS previously discharged at Western Kraft, Albany, Ore. More than 40% reduction in effluent oxygen demand, from 300 parts per million down to 160 ppm, was achieved by other mill improvements.

FLAME-PROOF PAPER INTRODUCED. . . . A bleached white sulfate paper which has been impregnated and fully saturated with a chemical solution so it cannot catch fire has been put on the market by Noland Paper Co., Los Angeles. The new product, Nopaco, can be used for decorations, signs and banners, stage scenery, screens, stenciling, silk screen and graphic arts applications.

COURT ORDERS "AVERY TRACT" PARTITIONED. . . . The "Avery Tract," a 20,000-acre Oregon timber stand containing 1.25 billion bd. ft. of large old-growth timber, will be partitioned among its several owners by court order. Simpson Redwood Co., holder of undivided 11/32 interest, brought suit. Other owners include Sewell L. Avery, financier-industrialist, James H. Amick, trustee for the late Waldo A. Avery Jr., and Portland Mfg. Co.

FOREST SPRAYING PROGRAMS ARE SUCCESSFUL. . . . A joint industry-government spraying program in eastern Canada to control an infestation of the spruce budworm appears near success. Nearly 10,000,000 acres have been sprayed from the air since 1951. As a result forests have come through seven years of severe infestation with little damage. No spraying may be required in 1959. Aerial spraying in northeast Oregon scored another dramatic victory over the spruce budworm with an estimated 96% kill.

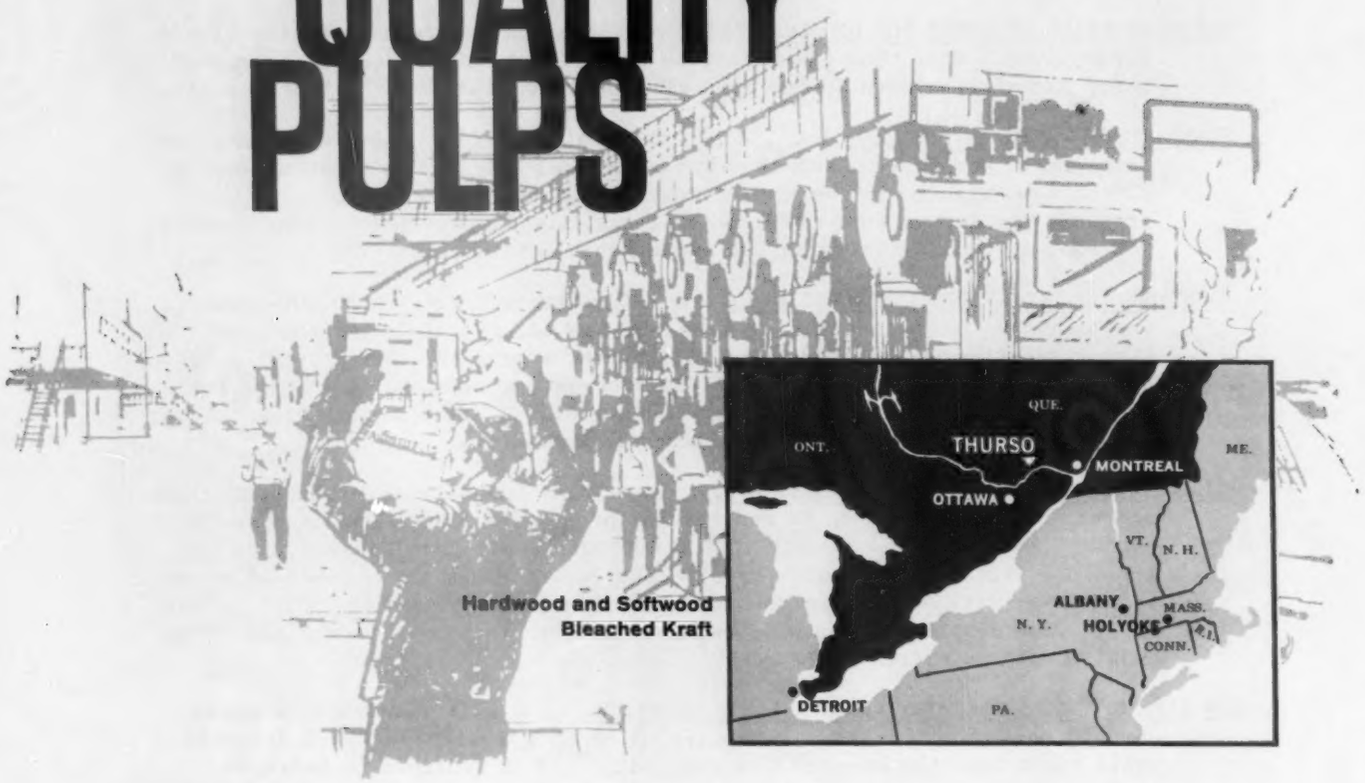
NEW TYPE OF CORRUGATED CONTAINER RESISTS SKIDDING. . . . Olin Mathieson Chemical Corp.'s packaging div. has introduced a container with non-skid properties built right into the board at the papermill. It is designed to decrease produce damage caused by container skidding on production lines in transit and in handling.

VALUE OF TIMBER WILL MORE THAN DOUBLE when the tree is "unlocked" chemicalwise, according to L. E. Van Blaricom of Rayonier's Olympic Research div., Shelton, Wash. He predicts 50% of wood not presently suitable for processing could then be used. Lignin research may be the solution for both this and the liquor disposal problem, he says.

VAST UNTOUCHED FIELD OF MERCHANDISING exists for knit paper products which should supplement, not replace, present markets, says R. H. Marks, vice pres. of Enterprise, Inc., Dallas. Besides packaging, there are "many other industrial uses in which knit mesh products will find a place, as well as for curtains, bedspreads, slip covers, tablecloths and wallpaper," he says.

NEW SOIL FILTRATION PROCESS FOR SPENT SULFITE LIQUOR. . . . Badger Paper Mills, Peshtigo, Wis., reports results to date indicate a new method of soil filtration will be successful. Tank trucks with unloading spouts discharge spent liquor along a mile-long, one-way road just inside an 80-acre field of sandy wasteland. Some 600,000 gallons per week are dispersed through so great a volume of soil that natural organisms can use up the wood sugar as fast as it is delivered to them, according to Walter A. Adrian, pres. of Badger Paper.

THURSO QUALITY PULPS



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We use carefully selected hardwoods and softwoods from our own huge timber reserves and process them in the new, ultra-modern Thurso mill... utilizing the latest in equipment and the most advanced manufacturing techniques... to meet the exacting standards of our quality control and research sections.

The result—high quality pulps of uniform brightness, strength, consistency and workability.

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WORLD PULP & PAPER General News

Big Mill Investments Prepare for Common Market

By William F. Boks
PULP & PAPER Correspondent

Antwerp. . . . Despite a slide-off in production from 1957, Belgian paper companies are preparing for the first steps in effecting the Common Market on Jan. 1 by making extensive investments to step up their own productivity. The Common Market will mean increased competition from foreign papers, especially from Western Germany, where many mills were destroyed during the war and are now rebuilt and equipped with the latest machinery.

On Jan. 1, the first step of the Common Market goes into effect, and will include a 10% reduction of import duties. Subsequent decreases will gradually wipe out all duties among the six nations of the Common Market in the next 15 years.

Prices for paper and paperboard, as well as raw materials, have shown great stability, even while production declined. For six months of 1958 the monthly average for production was 27,210 tons as compared with 32,000 in 1957. This was mainly due to a slowdown in production of wrapping and coarse papers. Fine papers output remains satisfactory despite considerable imports, including important tonnages from some Iron Curtain countries.

Belgium—Paper and Paperboard 1958 Production in Metric Tons*

January	29,290
February	25,908
March	28,918
April	26,295
May	24,948
June	27,904

*One metric ton equals about 1.1 short tons.

Forestry Consultants Affiliate

Vancouver, B.C. . . . T & H Engineering & Forestry Ltd. announces its affiliation with Sandwell International Ltd., consulting engineers, also of Vancouver. T & H changes its name to Forestal Forestry and Engineering International Ltd. Forestal officers are: H. Swantje, pres.; E. S. Reid, J. R. Collins, P. R. Sandwell, Paul E. Cooper and H R. Horne, directors; and D. A. Lawson, secy. Offices are at the Resources Bldg., 1409 W. Pender St., Vancouver. T & H provided the forest inventory survey for the Celgar development, the Kitimat project, and are currently making a complete forest survey of the Esquimalt and Nanaimo land grant on Vancouver Island. In association with Sandwell, they are completing the forest survey and developing working plans for the Khulna newsprint project for the Pakistan Industrial Development Commission. The new affiliation is expected to extend Forestal's activities to a worldwide basis.

U.S. Firm Will Engineer Mill

Buenos Aires, Argentina . . . Celulosa Argentina S.A. has engaged John G. Hoad & Associates, Inc., Ypsilanti, Mich., to do the bulk of engineering for a new pulp mill and bleachery at its Zarate mill, part of a major expansion for which American equipment will be supplied under an $8 million Export-Import Bank loan. American manufacturers who will supply equipment include Beloit Iron Works, Improved Machinery, Inc., E. D. Jones & Sons Co., Westinghouse Corp., Combustion Engineering and Swenson Div. of Whiting Corp. Output of the cold caustic semi-chemical pulp mill and related high-brightness bleachery will be 90 tons daily, to be used by a present newsprint machine and a new coated book paper machine. Hoad has begun an experimental program at Forest Products Laboratory, Madison Wis., on behalf of Celulosa Argentina, using Argentine willow poplar to determine design criteria for the selection of the process and pulp mill equipment.

French Styles in Paper

You may never have shopped for stationery at Tiffany or Cartier, but if you ever do, you may see the elegant products of G. Lalo, France's leading note paper manufacturer. They also are sold in large department stores.

Since American tastes differ from the French, Lalo designs paper with colored borders and scallops for export to the U.S. Classical straight edge is most popular in France.

Americans buy note paper folded into double sheets. The French prefer single sheets and buy envelopes separately. The American usually folds his sheet four times to fit in an envelope; the Frenchman chooses one that demands only three folds. Lalo's quality envelopes carry the old fashioned strip of gomme arabique, which tastes better than dextrine when you lick it.

Stiff cards for short notes, with matching envelopes, are made only for the U.S. market. When a Frenchman wants to send a short note, he uses his personal engraved card. By such detail, a man is known.

Lalo makes fine papers at its Dauphine mill, using 75% Swedish pine cellulose, 25% rags, and pure mountain waters.

Form Foreign Operations Unit

New York, N.Y. . . . Jesse D. Crell is appointed manager of a new foreign operations department formed by Graver Water Conditioning Co., New York, division of Union Tank Car. Co. The new unit will work in conjunction with the International Division of Graver Tank & Mfg. Co., Inc., a subsidiary of Union Tank. At present particular emphasis will be on expansion in Central and South America. Additional sales agencies, foreign licensing agreements and, where practical, foreign fabrication facilities will be established.

Philippine Mill Ups Output

Bais, Negros . . . Cia. de Celulosa de Filipinas plans to double its output of bleached pulp from 15 tons to 30 tons per day. This mill, the first in the Philippines, was closed down during WW II and reopened in 1949 after repairing war damage. It uses the Celdecor-Pomilio soda-chlorine process and produces fine printing, bond and typewriting papers mainly from sugarcane bagasse. Electrolytic cells of the diaphragm type produce from sea salt all the necessary chemicals except for a little lime for bleaching.

Newsprint Machine Installed

Skien, Norway . . . A 55,000 ton-per-year newsprint machine, one of Norway's largest, was installed at the Union Brug plant of A/S Union. Capacity can be increased to about 80,000 tons annually. Other new equipment, including new grinders, boosts annual mechanical pulp capacity from 44,000 to 110,000 tons (wet). The major remaining problem is to increase electric power supply.

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LININGS and TILE TANKS
Stebbins installations can be made under a single contract which covers everything from the original design, which is based on a full knowledge of chemical, physical and mechanical requirements, to the finished job ready for use. Maintenance can also be included. As proved by the experience of leading mills throughout the country, you can rely completely on Stebbins service.
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CHLORINE DIOXIDE BLEACHED HARDWOOD SULPHATE

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Throughout the free world, papermakers use and like Riegel's Albacel and Astracel ... paper-grade pulps that provide the right balance of all important qualities: brightness, cleanliness, strength, formability and proper beating characteristics.

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IGEPAL CO-630	ACR LIQUOR LOSS REDUCTION SEQUESTRANTS FOR IRON, MANGANESE COPPER, CALCIUM	CHEELOX B-13, HE-24, BF-13, BF-ACID
IGEPAL CO-630 NEKAL WS-25	PAPER REWETTING OPTICAL BRIGHTENERS	BLANCOPHOR HS-71, HS-76 LS-81, HS-31
IGEPAL CO-630 IGEPON T-33	FELT WASHING CALENDER COLORING	SAVANOL A EMULPHOR EL-719

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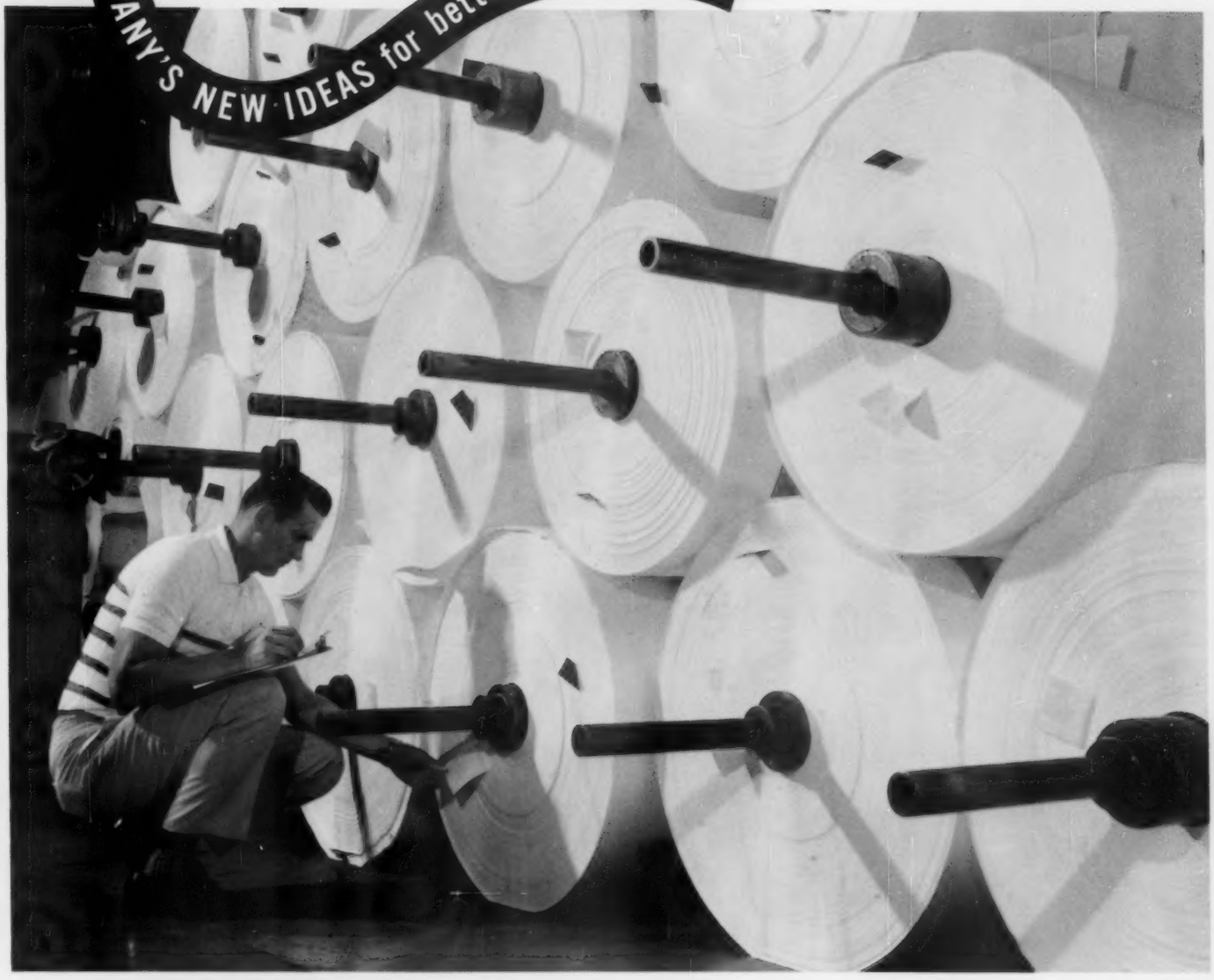

THE BIG PICTURE . . .

MORE SALEABLE TONS PER DAY

Today's market stresses quality and costs. So more than ever, paper mills think in terms of more saleable tons per day.

In 1952, Albany Felt Company introduced this yardstick as the most effective measurement of felt efficiency. For at Albany Felt Company we always design felts to last as long as possible; but our major objective is to produce felts that will help you achieve the big picture . . . fast, trouble-free performance, consistently high average production of quality paper or board for more saleable tons per day.

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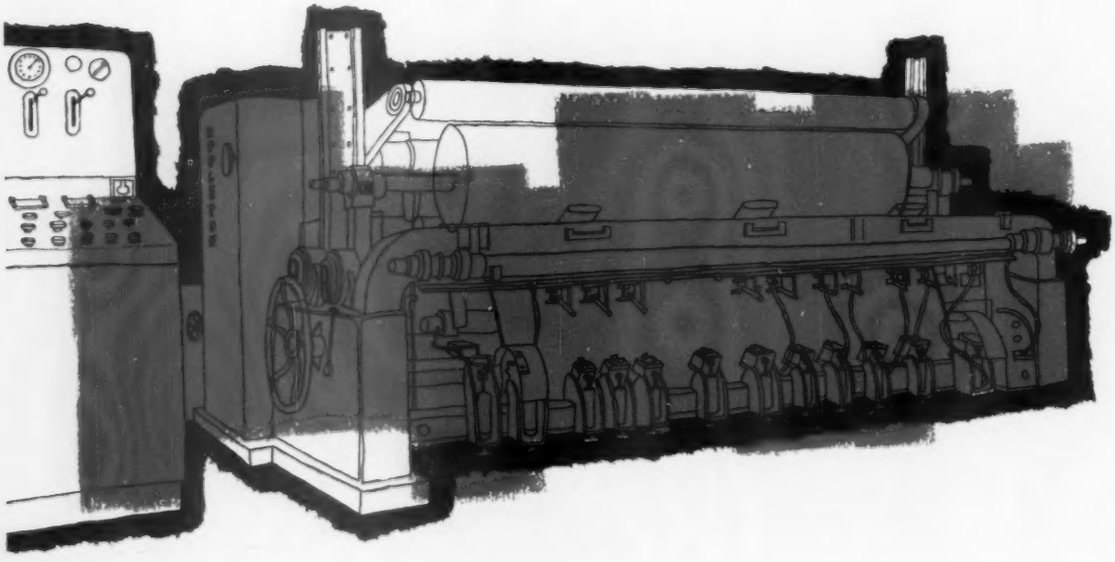
Powerful and compact . . . low contour and vibration-free . . . superbly accurate, too. But the feature that makes Appleton's new winder so important to you is *Push-Button Control!* The entire operation of this smooth-running winder can be pre-set. Then, just a touch of a finger puts Appleton's precision performance to work for you. Because it requires only a minimum of attention, *Push-Button Control* speeds production, increases efficiency . . . eliminates possible operator error in your critical slitting and winding operation. Ask your Appleton representative for his brochure, "Appleton Winders," the new composite specification for Appleton two-drum winders and rewinders.



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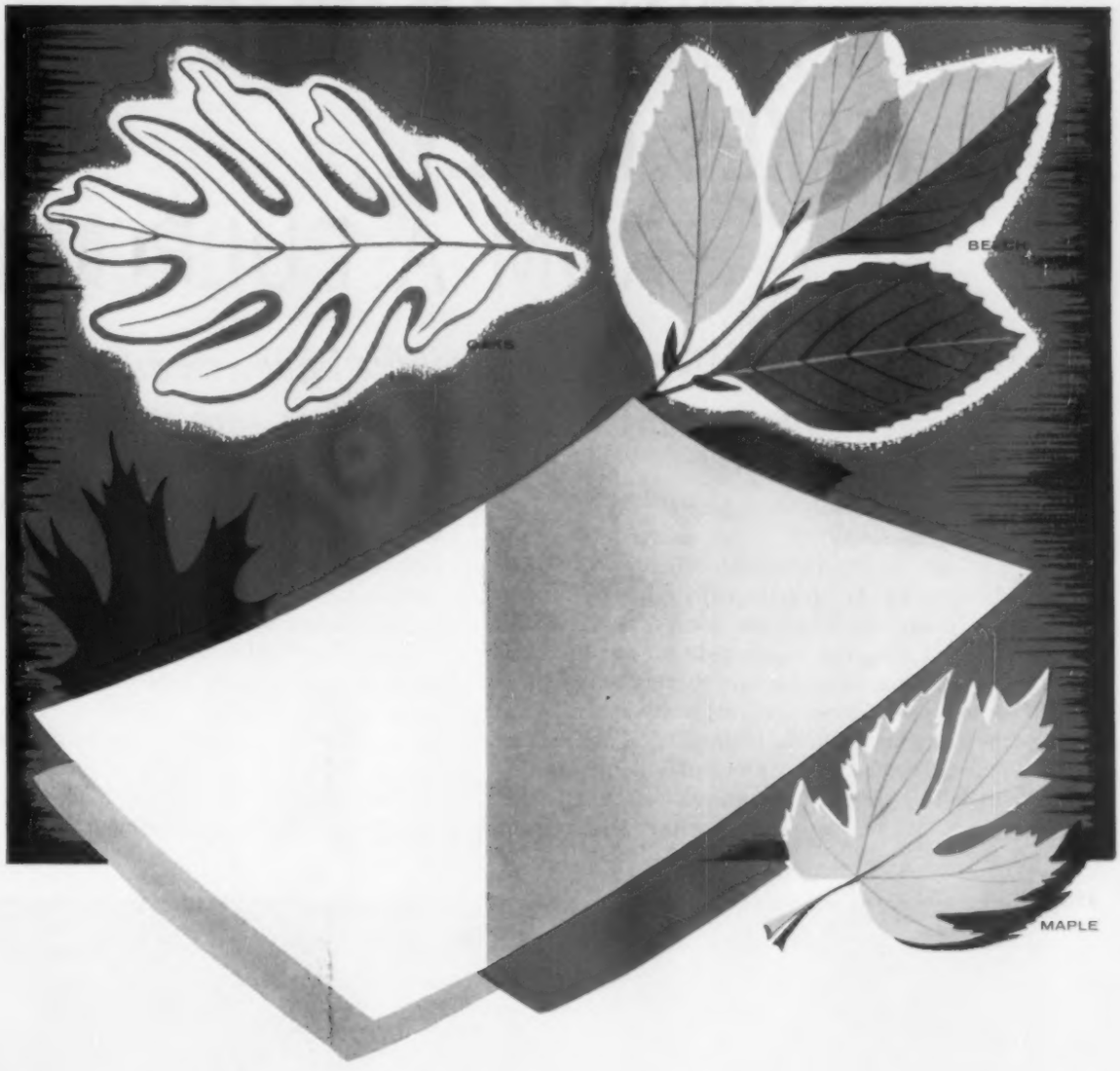
ASK ABOUT APPLETON'S EXCLUSIVE DEFERRED PAYMENT OR WINDER LEASE PLAN



In cold soda pulp—

H_2O_2 bleaches brighter and whiter

If you're looking for a truly effective bleaching agent for chip-groundwood pulps, be sure to check the performance of hydrogen peroxide.

Experience shows that hydrogen peroxide gives high brightness, low yellow color, excellent reversion resistance and preserves high yield.

And—still another important "plus": the higher you bleach with *hydrogen peroxide*, the greater the resistance to reversion.

Shell Chemical has had cold soda pulp bleaching experience with most U. S. hardwood, including Northeastern, mid-Atlantic and Southern species. Our laboratory facilities and field engineers are available for bleaching studies and mill trials. Data on single-stage and two-stage bleaching processes can be placed at your disposal.

Your Shell Chemical representative will be glad to give you complete information on hydrogen peroxide bleaching of ultra-high-yield pulp.

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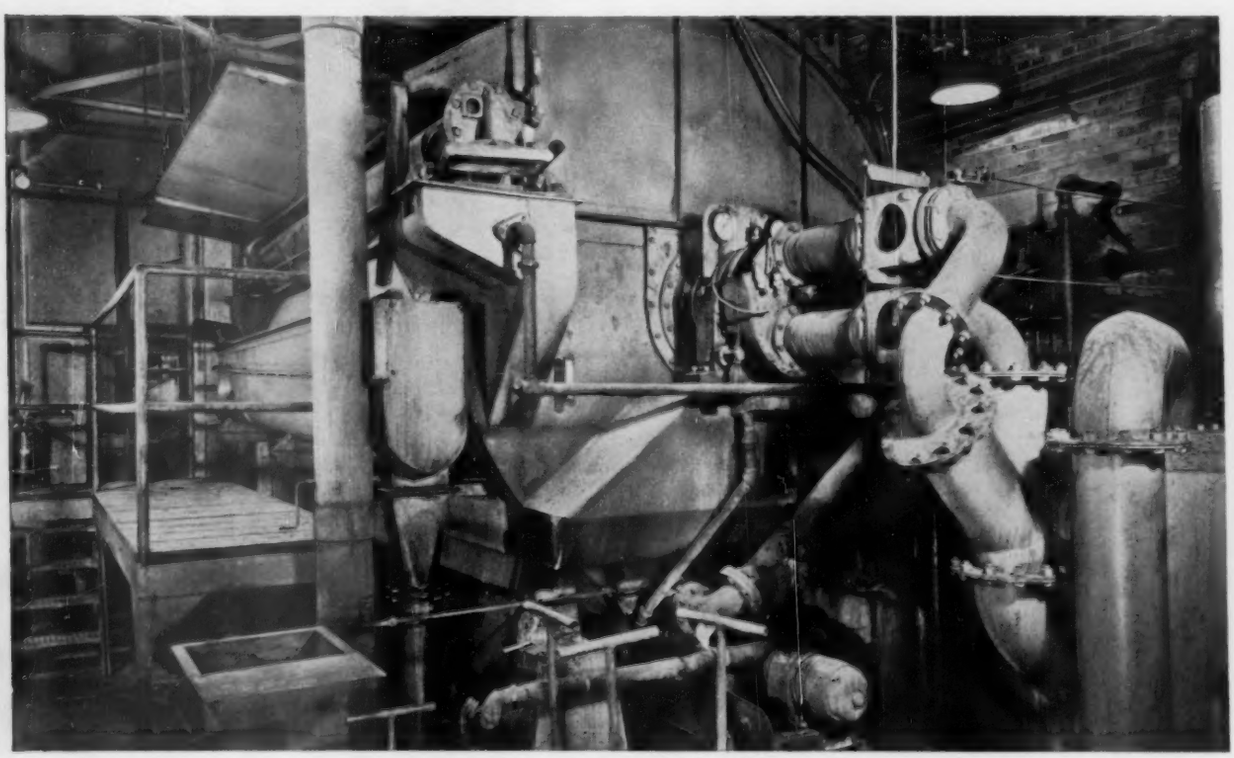
HOW MARATHON **MAKES MONEY...** FROM A PULP MILL

Chemicals from spent sulfite liquor made in unique plant using Dorr-Oliver equipment

Spent sulfite liquor, the perennial headache of the pulping industry, is a rich source of valuable materials at the Rothschild, Wisconsin, pulp mill operated by the Marathon Division of American Can Company. These materials include vanillin for food flavoring, dispersants for use in rubber manufacture, ceramics and dyeing, as well as a wide range of other products with applications all the way from industrial cleaners to oil well drilling.

To make chemicals from sulfite liquor, a three-stage lime precipitation process is used. Initial filtering with an Oliver vacuum rotary filter recovers calcium sulfite, which is recycled to the pulp mill to make cooking acid. Further treatment of the filtrate yields organic acid salts and calcium lignosulfonate, basic raw material for the production of vanillin and various metallic lignosulfonates.

Dorr-Oliver equipment used includes a settling tank for settling out lignin solids in the early stages of the process, a stainless steel continuous rotary filter for removing gypsum after acidification of the organic precipitates and a rotary precoat filter for removing finely divided solids from the effluent after vanillin-making.



HEADACHE

Intensive research to develop materials and markets and the use of the most modern processing equipment to give maximum recovery of saleable products, form the basis of Marathon's successful operation. Output of chemicals now amounts to millions of pounds annually.

The Dorr-Oliver equipment used provides just another example of Dorr-Oliver's ability to meet highly specialized processing requirements. For information on equipment for your particular needs, just drop us a line—or better still, have one of our specialists call on you. No obligation, of course.

Oliver—Reg. T.M. U.S. Pat. Off.

DORR-OLIVER
INCORPORATED
WORLD-WIDE RESEARCH • ENGINEERING • EQUIPMENT
STAMFORD • CONNECTICUT • U.S.A.

(At left) OLIVER ROTARY PRECOAT FILTER removes finely divided solids and isolates partially desulfonated, purified lignosulfonates from vanillin plant effluent. This type of Oliver filter makes possible continuous filtration of products that would quickly "blind" conventional filters.

(At right) OLIVER STAINLESS STEEL ROTARY FILTER removes gypsum, obtained after acidifying the organic precipitate, basic calcium lignosulfonate.

The full line of Oliver filters includes types to meet practically all requirements of the chemical processing and pulp and paper industries.

New Salem pipe line to augment present system will add approximately 50 MGD capacity to city water supply system.

a line of growth... for Oregon's capital city

American Concrete Cylinder Pipe is helping Salem, Oregon to grow

A simple but important fact is that no city, however great its potential, can grow beyond the capacity and dependability of its main water supply system.

Recognizing this fact, and envisioning a population in 30 years that will require three times the maximum capacity of present water transmission lines, Salem, the capital city of Oregon, is carrying out a program designed to meet future needs.

Under the direction of the City's Water Department Manager, John L. Geren, and the technical supervision of Consulting Engineers Clark and Groff of Salem, an 18-mile pipe line of 48" and 54" diameter American Concrete Cylinder Pipe is being installed by Lord Brothers, a general contracting firm of Portland, Oregon. This new line will triple the present capacity of the supply system.

The performance record of this type of reinforced concrete cylinder pipe has been so outstanding throughout the West that Salem can be confident that this water "growth line" will be giving efficient, economical service for many, many years to come.

Strength, permanence, sustained high carrying capacity, and trouble-free service are characteristics of American Concrete Cylinder Pipe which make it the right pipe for this forward looking city.

When planning your future water "growth lines," look to American's quality pipe line products, extensive production facilities and half century of experience.

Ask for complete information concerning the particular class of pipe that will meet your design requirements.

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from sample can to carload in one year

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In *paper coating*, Hydrafine excels in developing high brightness and gloss. In *boxboard coating*, Hydrafine gives maximum brightness and covering power at low coat weights. A clay of *extreme fineness*, Hydrafine is spray-dried in the pre-dispersed form preferred by many manufacturers. Hydrafine is also available in lump and pulverized form.

Hydrafine is produced by Huber's patented Viscontrol® process, which eliminates viscosity fluctuations normally found in all kaolin crudes.

SPECIFICATIONS:

Particle size—90-94% finer than 2 microns
GE Brightness—86-87%
Controlled low viscosity, as in all other Huber clays.

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. . . results in superior paper mill cores!

Sonoco quality control begins in our own paper mills. Here the core stock for paper mill cores is made to rigid Sonoco specifications. Throughout our completely integrated manufacturing facilities, quality can be, and is, carefully maintained from raw material to finished product. The end result is that Sonoco cores deliver the kind of uniform, trouble-free performance that adds up to cost savings in use.

DUROLENE CORES: Premium Sonoco quality. Available as a non-returnable core in all diameters and lengths, or returnable with Bermico metal ends in standard sizes.

DURO CORES: Standard Sonoco quality. Available with or without Bermico metal ends.

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Specialty cores, from ¼" I.D. and up, in lengths to 24'. Supplied in colored stock or with special inside or outside wrap, plain or printed.

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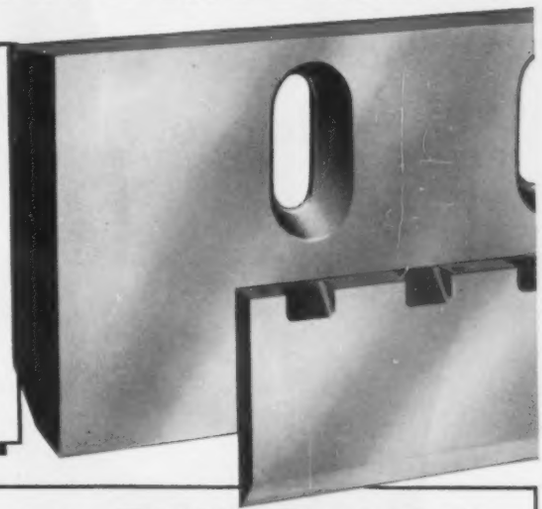

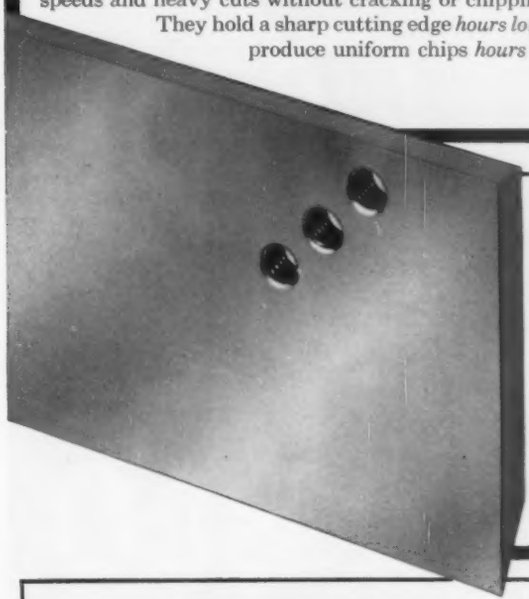

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Their Keener Edge Stays Sharp Longer!

Simonds-made S-301 Steel — developed especially for cutting paper — combines maximum hardness with toughness to give you more cuts per grind. Face-side taper, concave ground for added clearance, plus Simonds famous "mirror finish," provide a keener edge that cuts free, fast and straight. There's longer life in a Simonds Knife!

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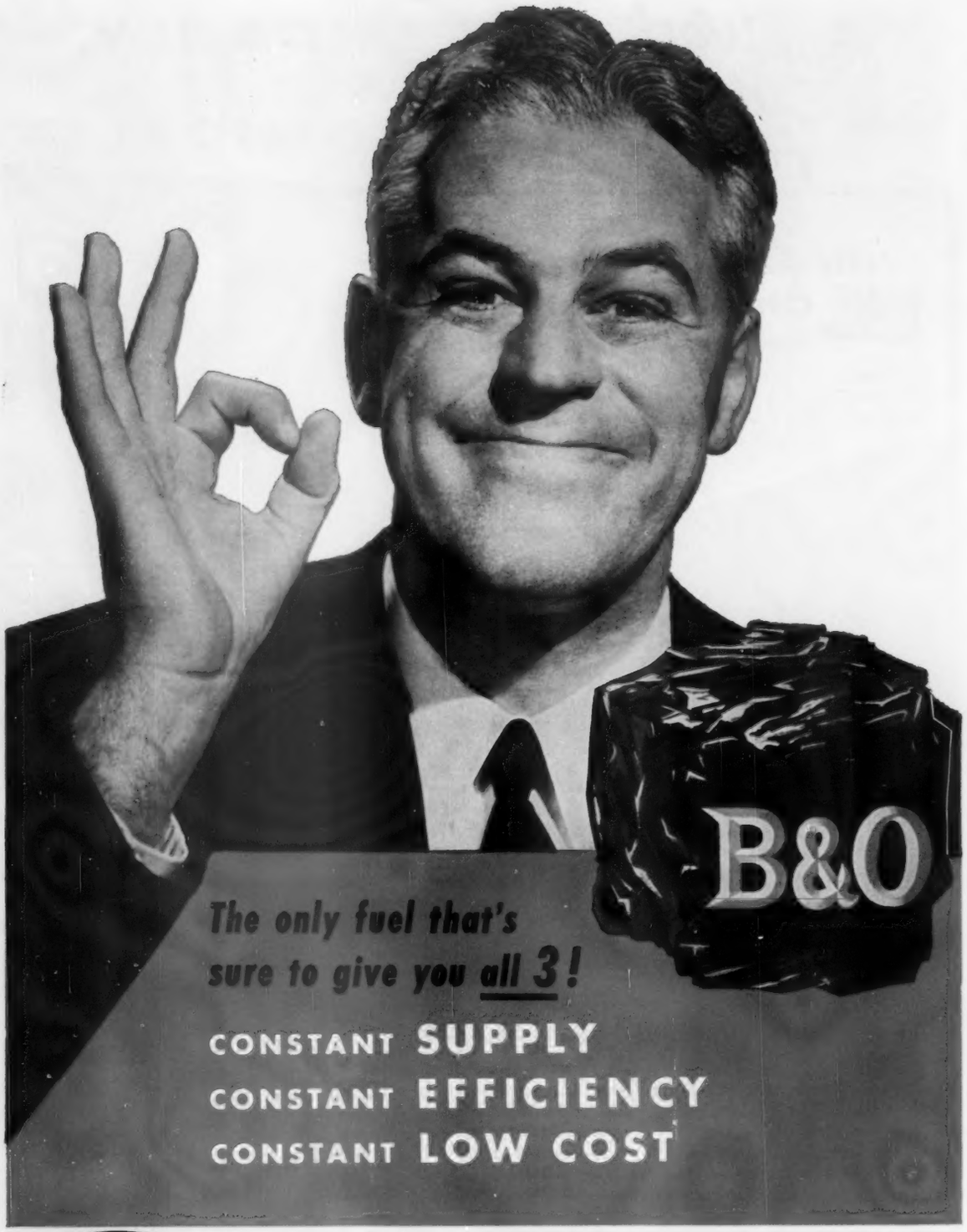

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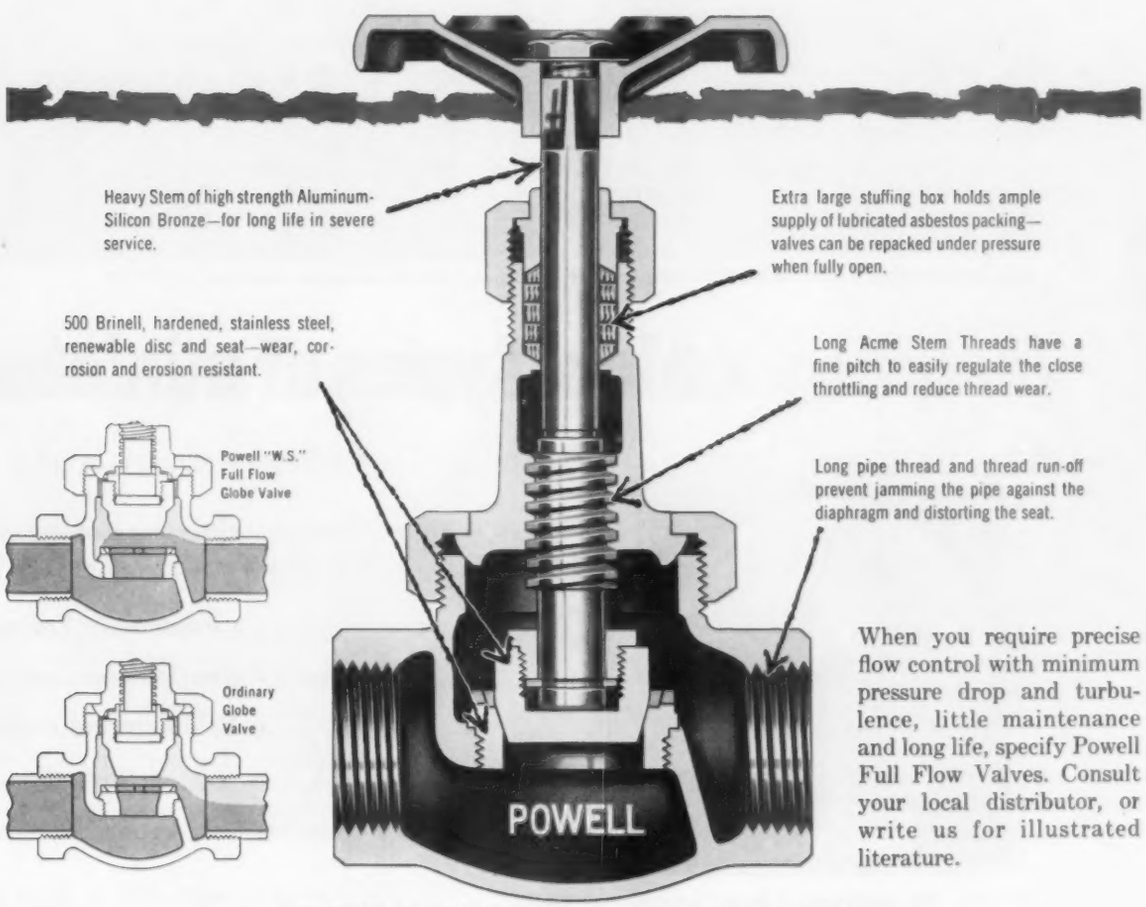
BULLETIN!

POWELL introduces new member in world's largest family of valves

Powell engineered "Full Flow" bronze valves are now available in a full line: the brand-new 150-pound screwed end Globe Valve, in addition to the well-known 200-300 pound Screwed and the 150-300 pound Flanged Globe and Angle Valves.

Although designed by Powell to assure maximum flow with minimum pressure drop and internal turbulence, these valves can be throttled to permit only the minutest amount of fluid to pass through. And, if desired, they can be supplied with Indicator Collar, Arm and V-port Disc for quickly determining flow and holding it constant.

Compare these advantages of Powell Full Flow valves:


Heavy Stem of high strength Aluminum-Silicon Bronze—for long life in severe service.
Extra large stuffing box holds ample supply of lubricated asbestos packing—valves can be repacked under pressure when fully open.
500 Brinell, hardened, stainless steel, renewable disc and seat—wear, corrosion and erosion resistant.
Long Acme Stem Threads have a fine pitch to easily regulate the close throttling and reduce thread wear.
Long pipe thread and thread run-off prevent jamming the pipe against the diaphragm and distorting the seat.
Powell "W.S." Full Flow Globe Valve
Ordinary Globe Valve
POWELL

When you require precise flow control with minimum pressure drop and turbulence, little maintenance and long life, specify Powell Full Flow Valves. Consult your local distributor, or write us for illustrated literature.

Fig. 2600 (Sectional)—150-pound "W.S." Full Flow Globe Valve, Screwed Ends

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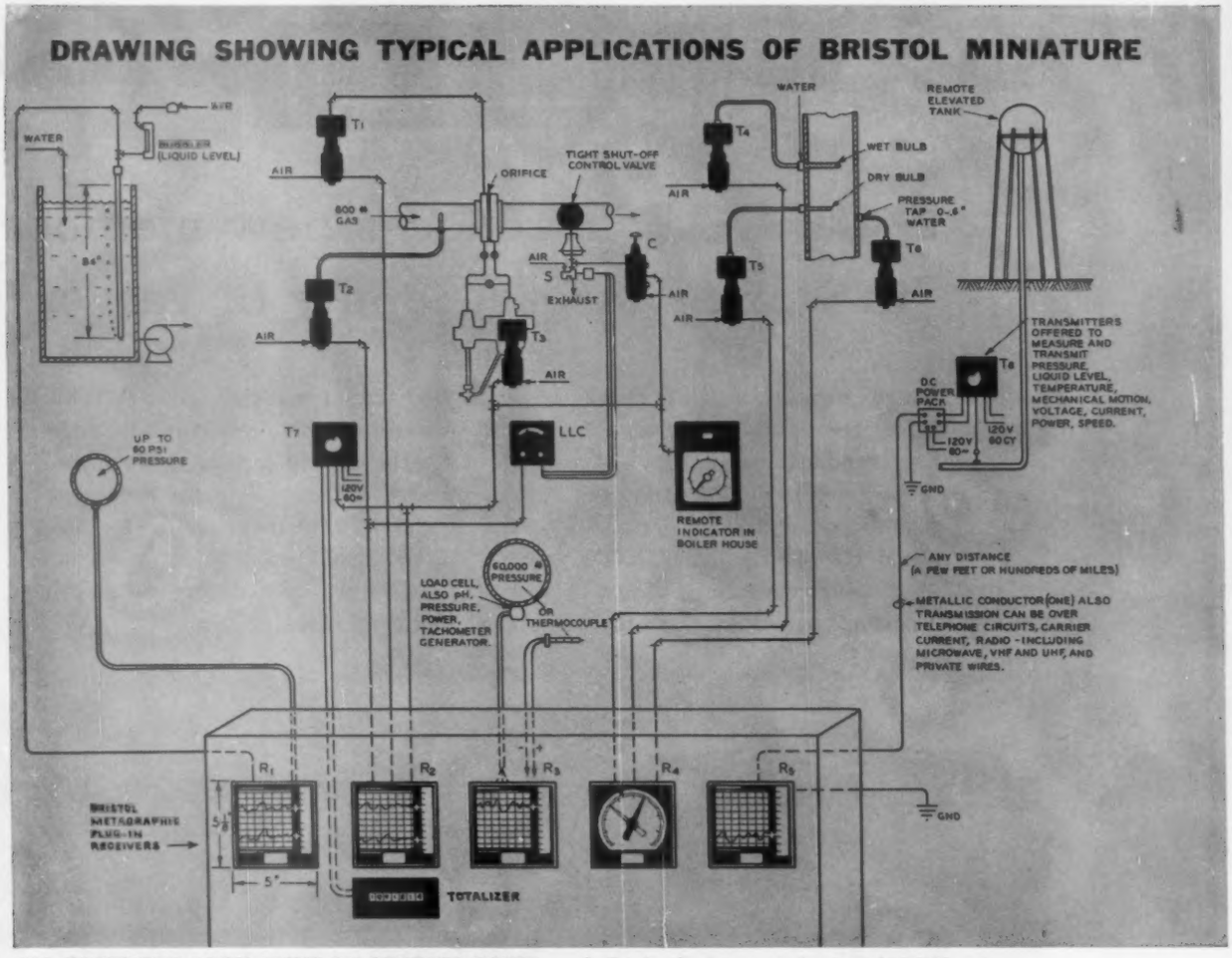

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Automatically Controlling, Recording, and Indicating Models

INSTRUMENT SYSTEMS

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T_1 Pressure
T_2 Temperature
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T_7 Integrator
T_8 Liquid Level Metameter Telemeter

*Metagraphic Transmitters are available for temperature, pressure, vacuum, differential pressure, flow, liquid level, mechanical motion, and through the use of the Bristol Dynamaster† Electronic Transmitter any input signal in the form of voltage, current, or change of resistance, capacitance, or inductance such as pH, speed, strain, density, etc.

BRISTOL RECEIVERS

R_1 Pressure or/and Liquid Level Recorder
R_2 Metagraphic Recorder (up to 2 records and 1 indicator)
R_3 Dynamaster Electronic Potentiometer or Bridge
R_4 Metagraphic Indicator—one, two, or three pointers for wide range of measurements or two pointers and one manual remote control.
R_5 Metameter† Telemeter

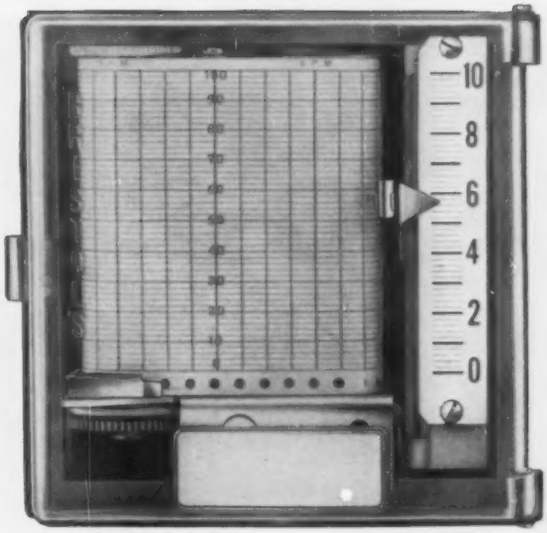
†T. M. Reg. U.S. Pat. Off.

BRISTOL METAGRAPHIC CONTROLLERS

(36 models to choose from—by far widest variety available)

Five Modes of Control

1. On-Off (Fixed High-Gain)
2. Proportional (Adjustable Gain)
3. Proportional-plus-Reset
4. Fixed-Proportional plus Fast-Reset
5. Proportional-plus-Reset-plus Derivative



BRISTOL METAGRAPHIC MINIATURE RECORDERS —whether electronic, pneumatic, telemetering, or gauge types—present a uniform, pleasing easy-to-read panel appearance, measure only 5" x 5 1/8", fit same 4 9/16" square panel cutout.

than any other instrument company

. . . plus a complete line of full-sized instruments

Bristol makes them all. Whatever your choice in instruments, you need look no farther than the complete Bristol line—pneumatic, electronic, miniature telemeters and gauges—all in a *planned* line.

Planned to give graphic panel installations a neat, pleasing, matching appearance.

Planned to give you the widest possible measurement range, the broadest instrument coverage, of any line.

Planned to free you from costly pre-installation decisions as far as practically possible—true plug-in instruments; widest practical number of instrument substitutions; easiest, fastest range changes.

Planned to give you any type of instrumentation electronic, pneumatic or mixed systems in plug-in miniature construction.

Planned to give you the results of modern human-engineering studies in chart, dial, and indicator visibility and readability.

Bristol makes all types, all sizes of instruments, can give you all control modes. That's why Bristol application engineers don't need to shade the facts. When they make an instrument recommendation it's based on our unbiased consideration of *your* problem alone.

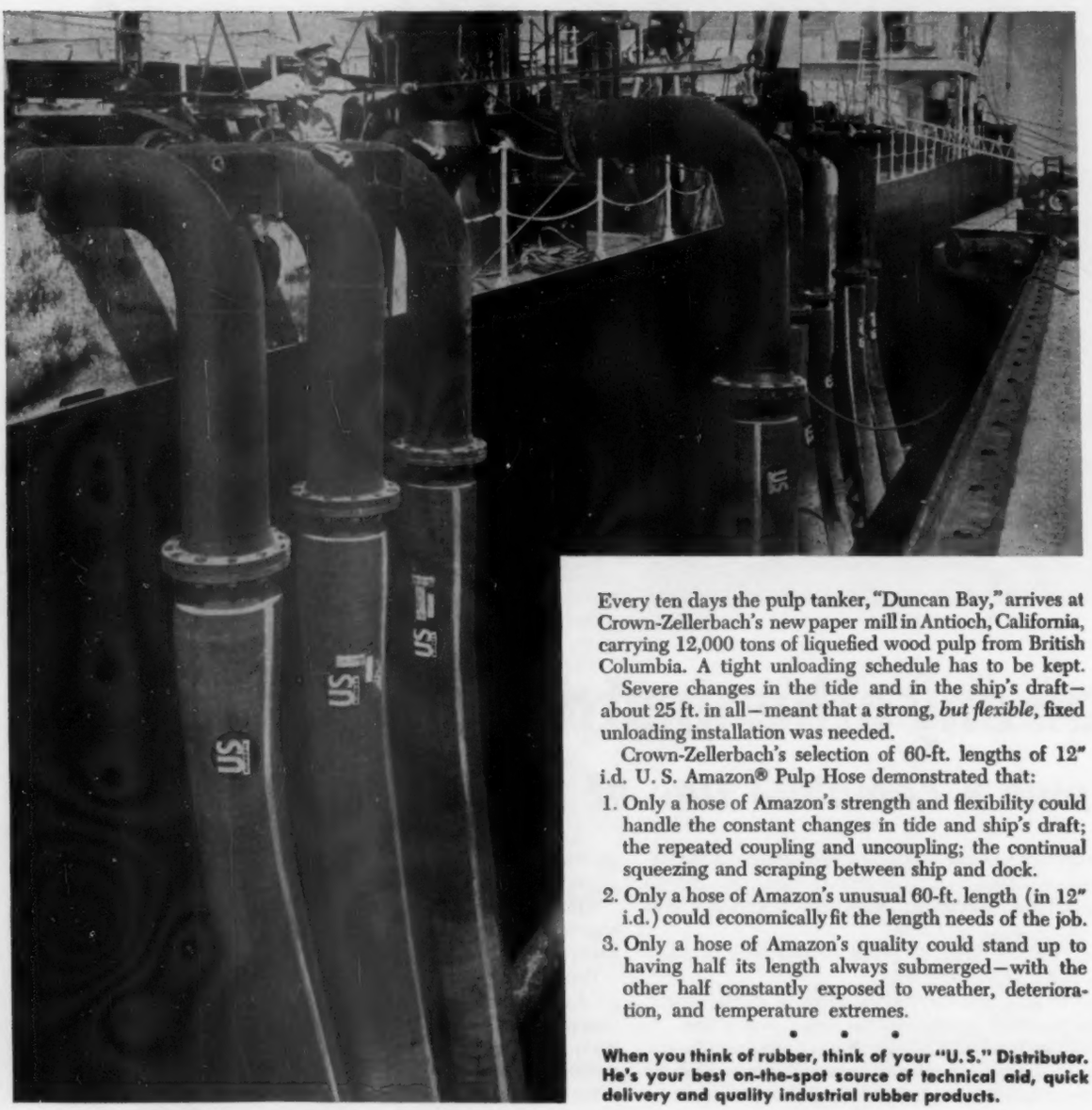
Write for complete technical data on Bristol miniature instruments today. The Bristol Company, 142 Bristol Road, Waterbury 20, Conn. B-6

BRISTOL *TRAIL-BLAZERS IN PROCESS AUTOMATION*

AUTOMATIC CONTROLLING, RECORDING AND TELEMETERING INSTRUMENTS

US RUBBER AMAZON HOSE

Controlling time and tide —with 60-foot lengths of hose



Every ten days the pulp tanker, "Duncan Bay," arrives at Crown-Zellerbach's new paper mill in Antioch, California, carrying 12,000 tons of liquefied wood pulp from British Columbia. A tight unloading schedule has to be kept.

Severe changes in the tide and in the ship's draft—about 25 ft. in all—meant that a strong, *but flexible*, fixed unloading installation was needed.

Crown-Zellerbach's selection of 60-ft. lengths of 12" i.d. U. S. Amazon® Pulp Hose demonstrated that:

1. Only a hose of Amazon's strength and flexibility could handle the constant changes in tide and ship's draft; the repeated coupling and uncoupling; the continual squeezing and scraping between ship and dock.
2. Only a hose of Amazon's unusual 60-ft. length (in 12" i.d.) could economically fit the length needs of the job.
3. Only a hose of Amazon's quality could stand up to having half its length always submerged—with the other half constantly exposed to weather, deterioration, and temperature extremes.

• • •

When you think of rubber, think of your "U.S." Distributor. He's your best on-the-spot source of technical aid, quick delivery and quality industrial rubber products.

US RUBBER Mechanical Goods Division

United States Rubber

WORLD'S LARGEST MANUFACTURER OF INDUSTRIAL RUBBER PRODUCTS

Rockefeller Center, New York 20, N.Y. In Canada: Dominion Rubber Company, Ltd.

cancel that safari!

CYANAMID OFFERS THE WORLD'S MOST COMPLETE LINE OF ROSIN SIZES!

Why organize a rosin-size hunt . . . when a simple telephone call will bring you a Cyanamid rosin size for virtually every application?

Cyanamid manufactures the world's widest variety of rosin sizes—including the lightest rosin sizes you'll see anywhere for upgrading paper whiteness at no extra cost.

Your orders and inquiries get immediate attention...our deliveries are fast...and the services of Cyanamid's laboratories and field staff are yours for the asking. Your Paper Chemicals Representative will be glad to give you complete details.

HELP WANTED?

SHIP FROM MACHINE

Mills ship papers treated with PAREZ® Resin 607 right from the machine! Rely on PAREZ 607 to give high wet strength right off the machine...save testing time, warehouse space, and win your customers' approval!

CLEANER BACK LINER

Cleaner, stiffer back liner is reported by mills using ACCOCEL® 741 Dispersant to disperse asphalt in waste papers. ACCOCEL 741 is a pitch dispersant of recognized effectiveness in producing many types of papers.

COSTS CUT 16% . . .

says a board mill that recently switched from regular rosin size to CYFOR® Fortified Rosin Size. Size consumption was reduced one-third . . . and the 16% cut in costs does not include freight savings!

FINE(ders), KEEPERS

Sodium Phospho Aluminate improves retention of fines... an important "plus" for mills where the white water system is not closed, and fines are lost in discharged waste water. Helps prevent stream contamination, too!

PLAN AHEAD

To help you stabilize your planning and pricing, Cyanamid now offers a three-month flat price schedule on *all grades* of rosin size. A real benefit to our Cyanamid customers!

CLEANER MACHINE

CYANAMID

AMERICAN CYANAMID COMPANY PAPER CHEMICALS DEPARTMENT
30 Rockefeller Plaza, New York 20, N. Y.
In Canada: Cyanamid of Canada Limited, Montreal and Toronto

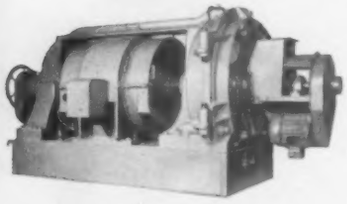
LARGEST SUPPLIER OF CHEMICALS TO THE PAPER INDUSTRY

SPROUT-WALDRON

Pointers

Refiners • Digesters • Conveyors • Feeders
Screens • Drainers • Pelleters • Presses • Stock Proportioners

Published in the interest of better processing by Sprout, Waldron & Co., Inc., Muncy, Penna.



COLD CAUSTIC PULPING OF EUCALYPTUS WOOD

Behind the technical story of successful cold caustic pulping, soon to be revealed by Australian Newsprint, is the superb performance of three 36-2 500 hp "Sprouts." Refining of eucalyptus woods for use in newsprint is being accomplished at 50 hp days per O. D. ton. Consistent yields of 90% are being achieved. The CSF is 150.

Prior to the installation of the Sprout-Waldron cold caustic process, the furnish for newsprint at this Tasmanian mill was 18% bleached kraft (pine), 82% eucalyptus groundwood. Machine speeds were 1080-1200 ft. per minute. With cold caustic refining, the furnish is 18% bleached kraft, 20% cold caustic and 62% groundwood. Machine speeds have increased by 100 ft. per minute and newsprint strength is equal to the world's best.

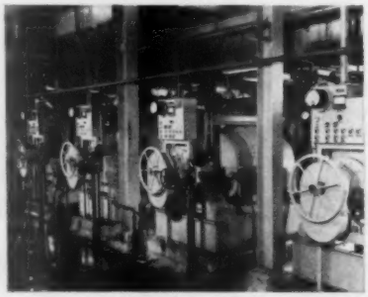
For the full story on this and other Sprout-Waldron cold caustic installations, call or write today. Sprout-Waldron experience with cold caustic refining is based on successful installations and actual production. Why not put this experience to work for you without obligation?

Sprout-Waldron has a condensed catalog available for your use. Ask for Bulletin 183.

S-W REFINERS PLAY BIG ROLE IN "DREAM" PLANT

The American Boxboard Company at Filer City, Michigan is a "dream" plant come true. It is a pushbutton pulp mill set up to process over 300 tons per day continuously, seven days a week, requiring only two operating men plus a clean-up man for each shift. The 450 HP S-W refiners fit right into this picture of precision operation and automatic control. Each of the five 36-2 single disc refiners has its own automatic control panel which contains an indicating KW HP meter; RPM meter for the variable screw feeder; speed control for the feeder; pushbuttons and indicating lights for the refiner motor, throat screw feeder and oiling system. This combination of high speed, carefully metered feeding and the precision operation of the refiners means one pass quality reduction of chips to fiber.

One of the highlights of this NSSC pushbutton system at American Boxboard is the fact that it permits the use of the prolific aspen wood in place of the more expensive jack pine formerly used.



Four of the five 450 hp 36-2 Sprout-Waldron refiners helping to make .009 corrugating board for American Boxboard.

FLAT BED DRAINER DEWATERS CHIPS & REJECTS

The Sprout-Waldron flat bed drainer de-waters or drains chips and rejects conveniently and economically while providing a steady even flow. It operates on the principle of a drag conveyor, with the stock traveling over a stainless steel screen plate to permit the necessary separation of liquids and solids.

The use of this modern flat bed drainer has proved particularly successful in systems designed by Sprout-Waldron for feeding semi-chemical chips from blow tanks. Such systems include efficient proportioning arrangements, accurate feed rate regulation and freedom from valve plugging. Flat bed drainage increases efficiency of any feeding system by assuring proper consistency of stock and providing even steady feed. Features include flexible and adjustable leather scraper blades, special wear-resisting nylon blocks to reduce friction, special anti-friction bearings and a wide variety of available screen areas from 12 to 50 sq. ft.

SW

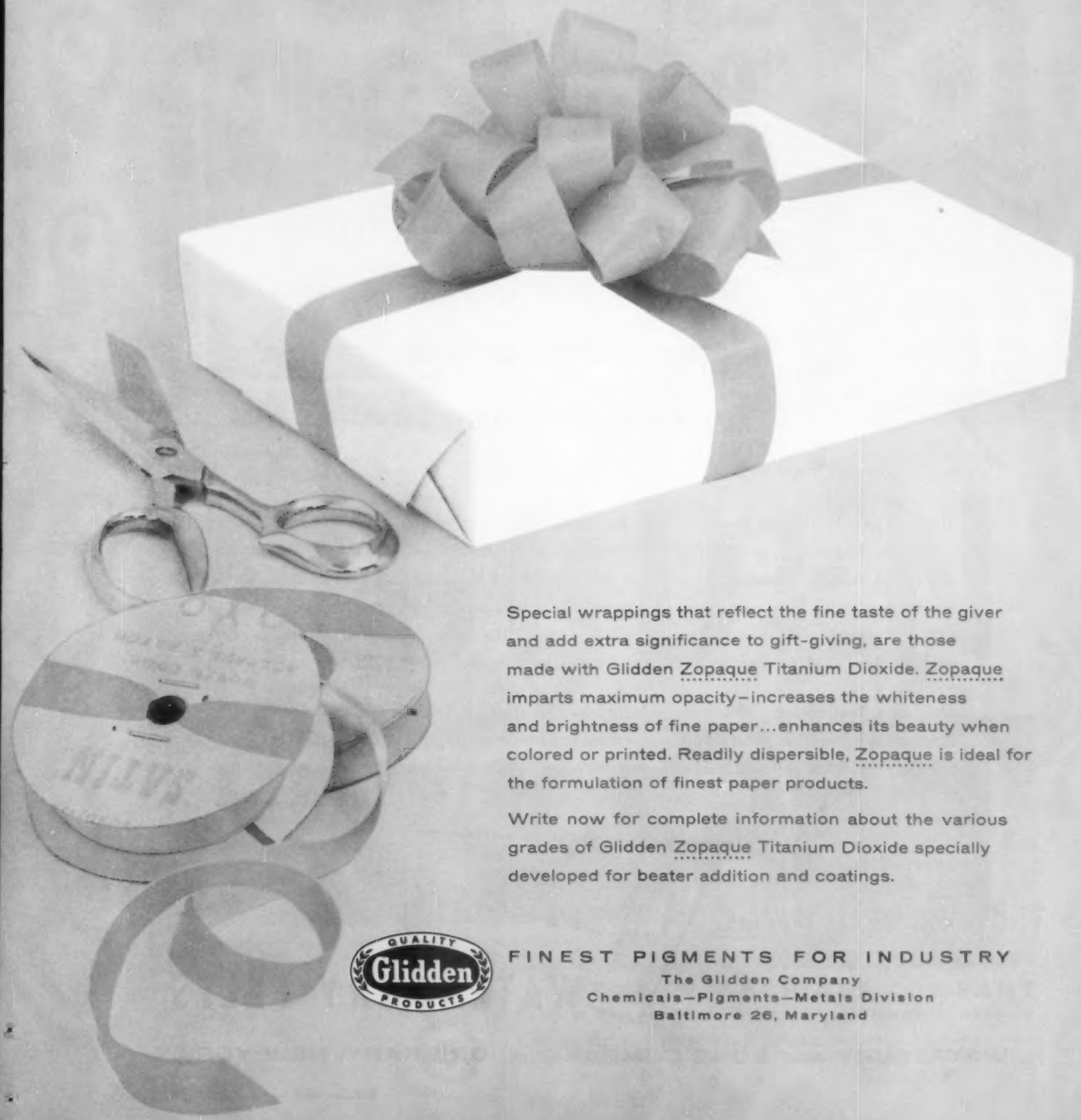
LABORATORY MIXER

The small, compact S-W laboratory mixer designed for research and pilot plant work is described and illustrated in Bulletin No. 188.

PP/102

FINEST GIFT WRAPPINGS...

begin with Glidden Zopaque® Titanium Dioxide



Special wrappings that reflect the fine taste of the giver and add extra significance to gift-giving, are those made with Glidden Zopaque Titanium Dioxide. Zopaque imparts maximum opacity–increases the whiteness and brightness of fine paper...enhances its beauty when colored or printed. Readily dispersible, Zopaque is ideal for the formulation of finest paper products.

Write now for complete information about the various grades of Glidden Zopaque Titanium Dioxide specially developed for beater addition and coatings.

QUALITY Glidden PRODUCTS

FINEST PIGMENTS FOR INDUSTRY

The Glidden Company
Chemicals–Pigments–Metals Division
Baltimore 26, Maryland

New "sweetheart" in the South!

RIEGEL'S "Carolina Belle"

Giant 236" Fourdrinier Specialty Paper and Board Machine is one of nation's largest tonnage producers

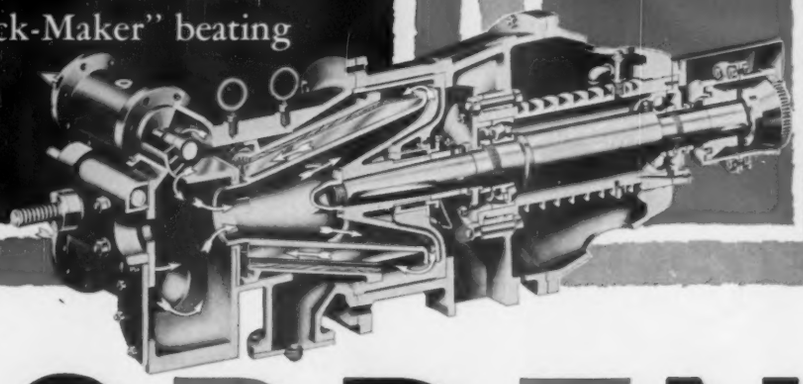
Riegel's new "Carolina Belle," in production since June, is a triumph of engineering precision. Capable of producing over 300 tons of quality paper each day, it has such advanced design features as Accuray for controlled basis weight and caliper, on-machine coating, a 90-roll dryer section and "kitchen purity" achieved by an almost 100% stainless steel stock system. It will be one of the nation's largest producers of high quality food packaging papers and specialty boards.

Oriskany Waterbury Felts were selected as the start-up felts on this modern new machine, and H. Waterbury and Sons Company extends congratulations to Riegel for its demonstration of faith in the future of America's free enterprise economy.

First choice-because They last Oriskany WATERBURY FELTS

H. WATERBURY and SONS COMPANY • ORISKANY, NEW YORK

Hundreds of "Stock-Makers"
throughout the world,
operating on all types
of pulps and grades of paper,
have proven the effectiveness
and efficiency of
"Stock-Maker" beating



MORDEN

If your mill does not have the many advantages of Morden stock preparation equipment, don't delay—send for the Morden catalog today. We shall be happy to visit you for an in-the-mill discussion of your requirements.

SPECIALISTS
IN STOCK
PREPARATION
EQUIPMENT

MORDEN MACHINES COMPANY

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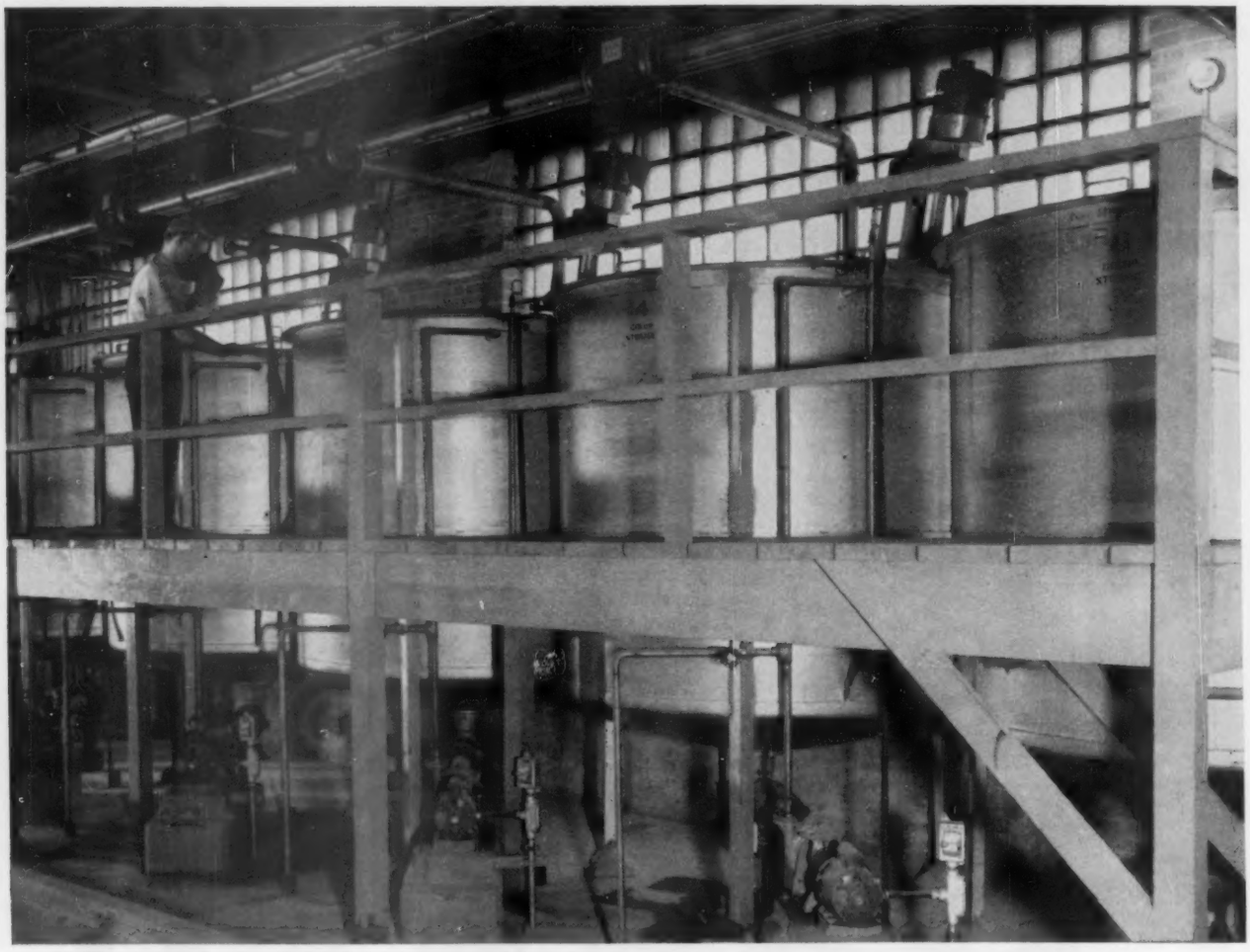


Paper Dye Storage in STAINLESS STEEL assures pure colors, uniform quality

Shown above is part of a battery of color storage tanks recently installed by The Chillicothe Paper Company at its paper mill in Chillicothe, Ohio. Fabricated from Republic ENDURO® Stainless Steel, the tanks are indicative of Chilpaco's widespread use of modern stainless steel equipment in producing a wide variety of quality paper products.

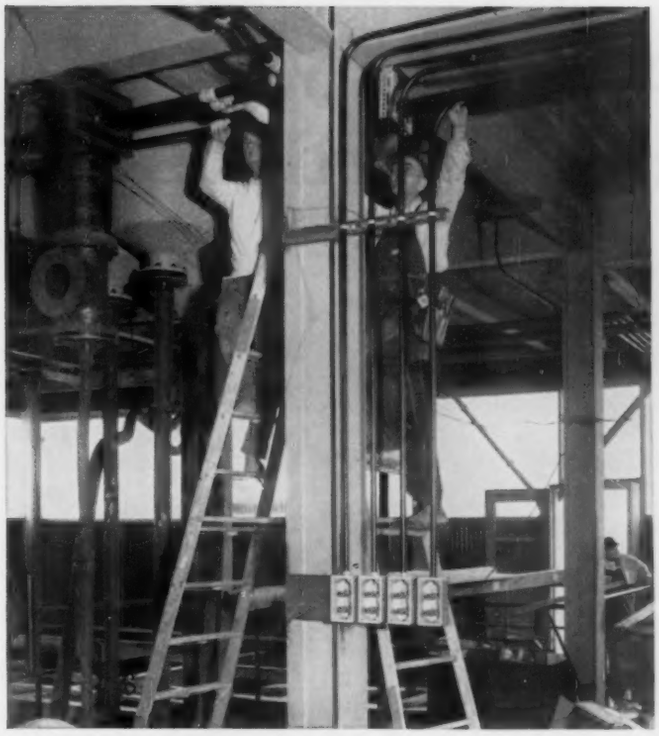
Why stainless steel? Because no other commercial construction material offers the combination of chemical and physical properties so essential to the mechanical and chemical stages of processing.

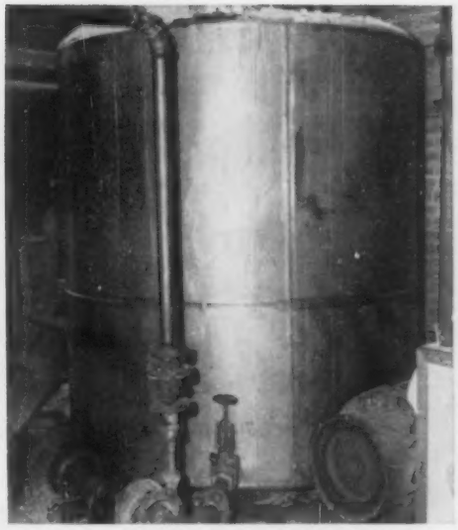
The use of stainless steel for color storage tanks assures pure colors and uniform quality. Stainless is inert to most chemicals and chemical compounds. It is non-contaminating. It provides maximum resistance to corrosion. Danger of stock loss due to inclusion of the oxides of corrosion or other contaminating matter is eliminated.

Equipment fabricated from Republic ENDURO Stainless Steel starts paying off the moment it is placed in operation. It produces immediate savings in maintenance and cleaning costs. Produces long-range savings in extended equipment life.

You can be enjoying the advantages of faster production, elimination of spoilage, reduced maintenance, lower costs, and higher product quality now. Your equipment supplier has all the facts on ENDURO Stainless Steel. Contact him, or send us the coupon.

This example of the advantages of stainless steel is brought to you by Republic Steel in behalf of the stainless steel equipment manufacturers and the Republic Stainless Steel distributors—your local steel service centers.

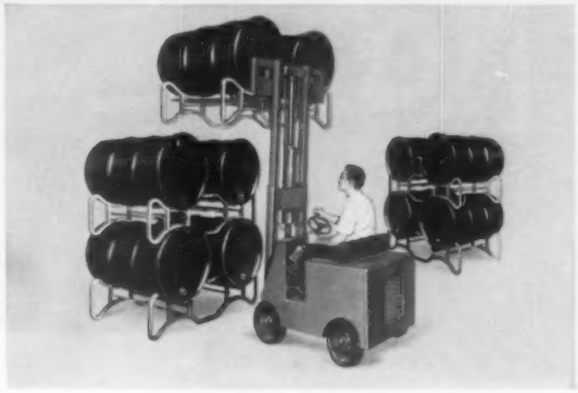




REDUCE REPLACEMENT AND MAINTENANCE COSTS with a corrosion-resistant piping system of Republic ELECTRUNITE® Stainless Steel Pipe. Photo shows how ELECTRUNITE Stainless Steel Pipe, Type 316, is used to carry off highly corrosive alum solution from stainless mixing tank. Stainless offers high resistance to corrosion. Provides positive protection against contamination and discoloration. Republic Stainless Steel Pipe's great strength and resistance to high temperature, pressure, and physical damage make it ideal for fluid-materials handling. Mail coupon for complete facts.

ASSURE CONTINUOUS PRODUCTION by protecting your electrical wiring systems with Republic ELECTRUNITE "Dekoron®-Coated" Electrical Metallic Tubing. This is the electrical raceway that shrugs off corrosion. A polyethylene coating encases strong, lightweight ELECTRUNITE E.M.T. in an end-to-end armor that is impervious to fumes and moisture. Corrosion-protected, moisture-tight joints are made by wrapping threadless connectors and couplings with plastic or vinyl-backed electrical tape. Also available in hot galvanized rigid steel conduit. Send for free booklet containing complete facts.

HERE IS ASSURANCE OF LOW-COST STACKING of steel drums. It is Republic's new Portable Drum Rack. These steel cradles each support two loaded 55-gallon drums. Pairs of drums can be stacked to any practical height. More in-use drums can be accommodated in less space than ever before. Any standard fork-lift truck can pick up, move, and stack as many tiers of drums at one time as capacity permits. Shipped knocked down, with fasteners for quick and easy assembly. Send coupon for details.



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World's Widest Range of Standard Steels and Steel Products

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Send more information on:
☐ ENDURO Stainless Steel ☐ "Dekoron-Coated" E.M.T.
☐ ELECTRUNITE Stainless Steel Pipe
☐ Portable Drum Rack

Name_____ Title_____
Company_____
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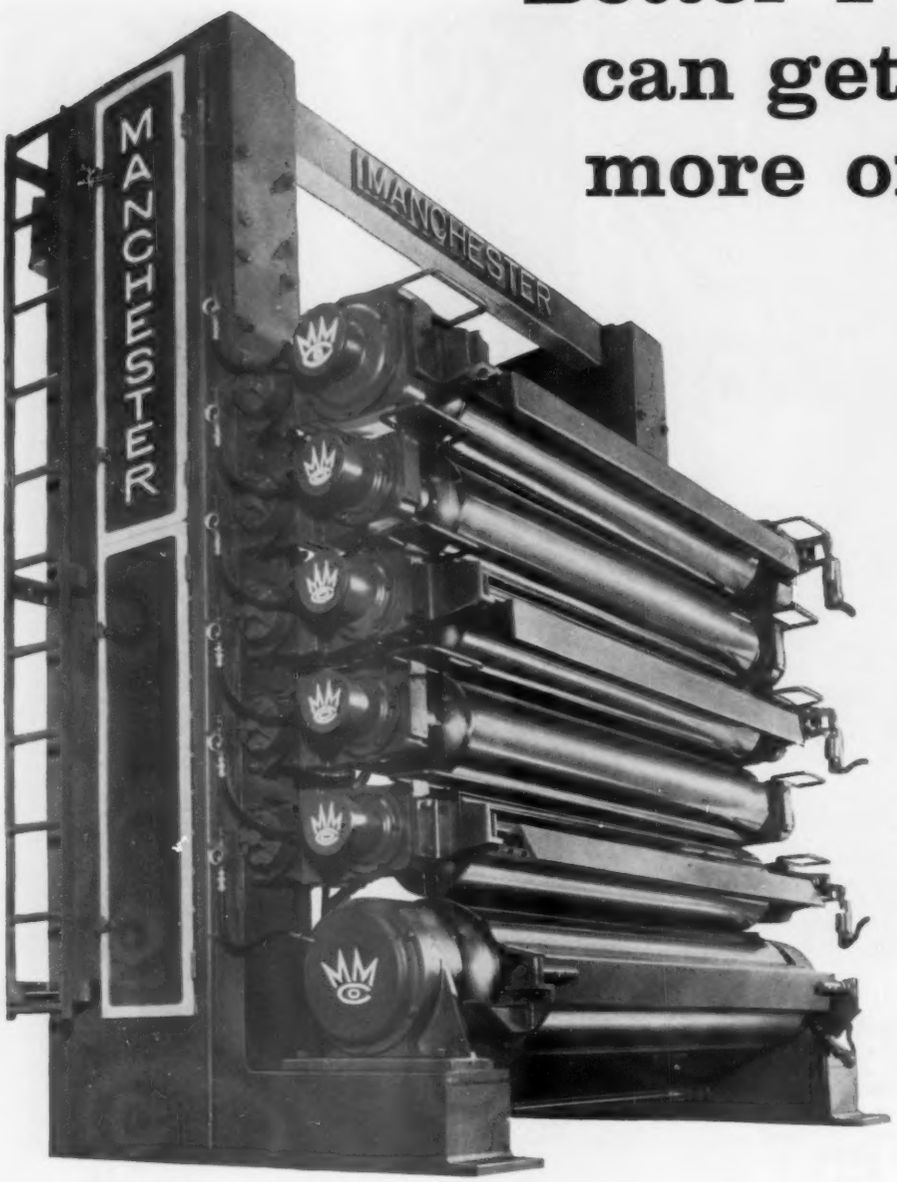
City_____ Zone____ State_____

Better Finish can get you more orders



This Manchester calender is not "just another open-side calender." Look at these important features . . .

- **Independent load control of every roll in the stack.**
- **Air-over hydraulic loading—for simpler, more sensitive control.**
- **Fast removal of any or all rolls.**
- **Rugged all-steel frame.**

Get all the facts about this improved Manchester calender. Write for complete information based on your requirements.

SPECIALISTS IN DESIGNING
AND BUILDING
PAPER MILL MACHINERY

THE MANCHESTER MACHINE COMPANY
MIDDLETOWN, OHIO

World-famous Radio City Music Hall Rockettes

PUGET PULP IS UNIFORM

PUGET SOUND PULP and TIMBER CO.

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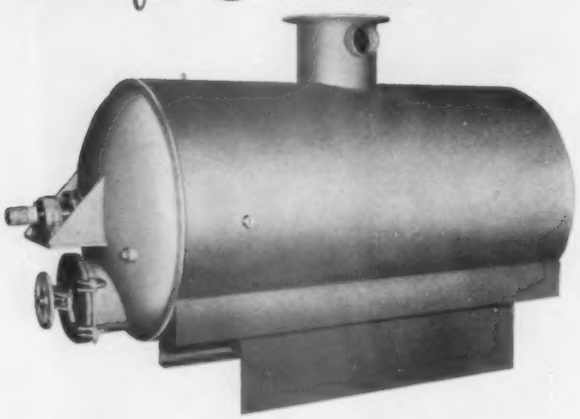
FELKER BROS. MFG. COMPANY

Metal Fabricators for OVER 50 YEARS

MARSHFIELD, WISCONSIN
Phones — 230 and 231

FELKERWELD
for Endurance



• A Pressure Cooker of open hearth mild steel fabricated to customer specifications.

ASME Code

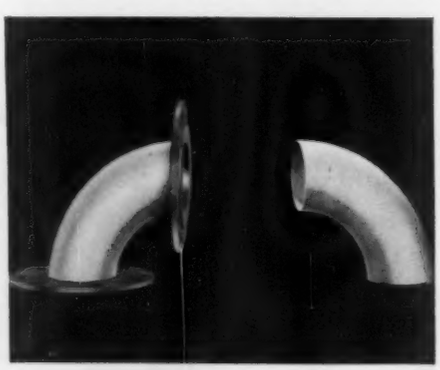
Our shop is qualified for construction under the A S M E Code for unfired pressure vessels, paragraph U-69 and U-70.

Our more than 50 years' experience in fabricating plain steel, applied to stainless steel when it came into the market enabled us to develop our FELKERWELD PROCESS for ENDURANCE, with such metals as Stainless Steel, Stainless Clad Steel, Inconel, Monel, Nickel, Copper and Aluminum Bronze. FELKERWELD is your guarantee for quality workmanship.

We Fabricate
to Your
SPECIFICATIONS

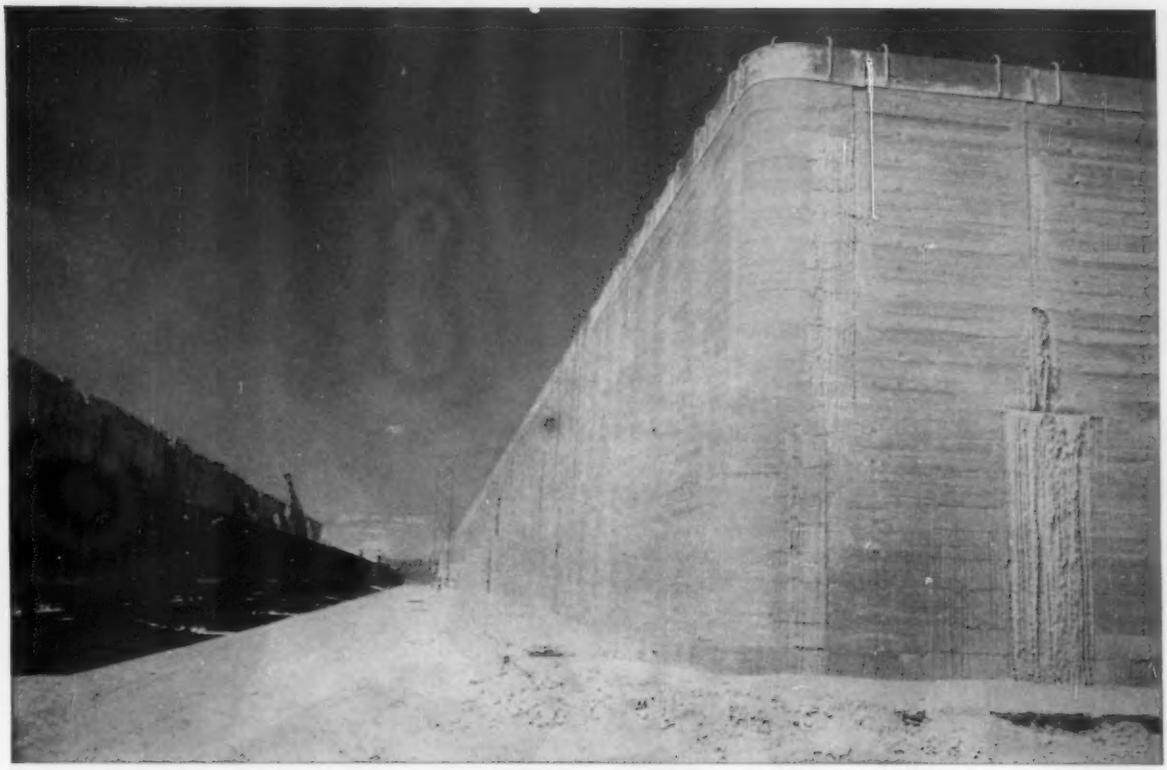
• FELKERWELD plug type CLEAN OUTS with quick opening Vee Grip Flange.

We invite inquiries on any Fabricated Products . . . write, phone or wire . . . estimates promptly furnished. Ask for our Bulletin No. 505.



• FREEFLOW Type Stainless Steel Elbows —Fittings available in all metals.

FELKER BROTHERS MANUFACTURING CO.
PHONES 230-231 MARSHFIELD, WIS.



Stockpiling

...a continuing company policy established years ago

Stockpiling is a measure of service.

The government is stockpiling strategic materials for its long range defense program. Thus, it serves the citizenry. The producer of a raw material who as a company policy stockpiles also serves . . . serves its customers who in turn serve others by being able to count on a supply of the raw material in quantity.

The policy of Texas Gulf Sulphur Company has always been to stockpile . . . always producing *extra* for the future. In spite of the growing demands for the important basic material it produces—Sulphur . . . the company's policy has been to keep on hand stocks equal to about a year's normal demand. With such a supply, it can make shipments, routine or emergency, of any tonnage, at any time, by any method.

Texas Gulf Sulphur Co.

75 East 45th Street, New York 17, N. Y.
811 Rusk Avenue, Houston 2, Texas

Sulphur Producing Units

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Moss Bluff, Texas
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Worland, Wyoming

bright stars in the paper
industry...from STEIN HALL
LYCOID®
(Galacto Mannan)
SUPERFILM®
(Modified
Corn)
SUPERSIZE
(Hydroxyethyl
Ethers)
RESINS
HALLMARK®
Tapioca
SUPERCOTE
(Coating Dextrine)
CALENDAR SIZE G
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Colloid)
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STARCHES
ENZO®
(Corn for
Enzyme
Conversion)
NATURAL GUMS
(Karaya, Guar,
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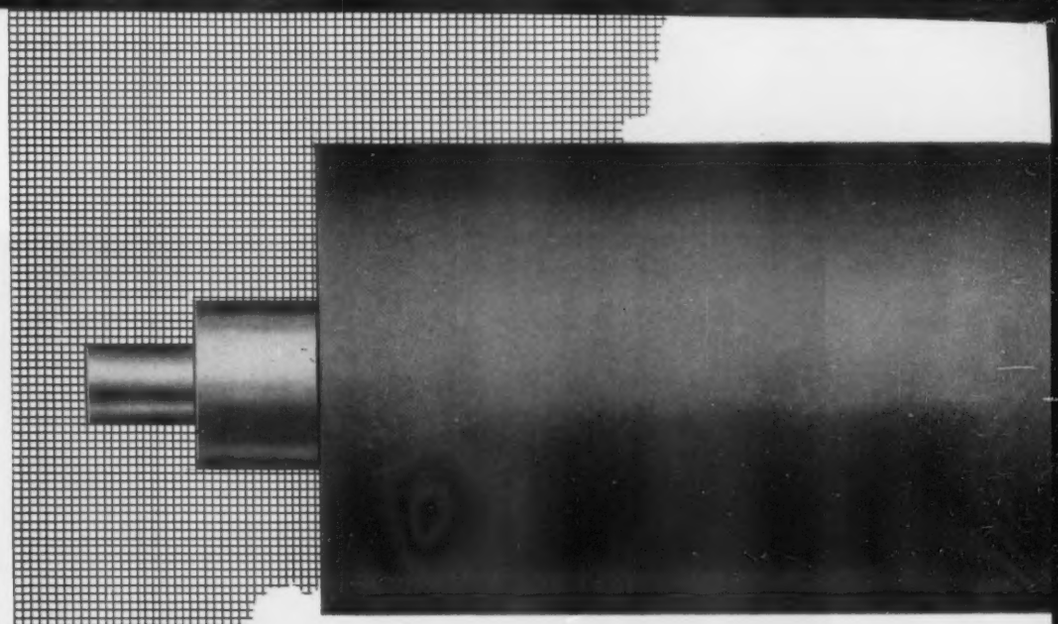
Serving the Industry with 18 Branch offices
strategically located throughout the United States and Canada
Further information available from the Paper and
Corrugating Department of Stein Hall & Co., Inc.
STEIN SH HALL
285 MADISON AVENUE NEW YORK 17, N. Y.
ESTABLISHED 1866



EXCLUSIVE

NEW "Tred-Roc" BY GRIFFITH

STONE-HARD ROLL COVERING FOR THE WIRE POSITION

The best roll ever developed for the wire position in high speed paper machines.

Its extremely hard, glossy surface virtually eliminates wire drag. Unequaled abrasion resistance assures amazingly long life and reduces costly "down" time for re-grinding or re-covering.

"Tred-Roc" is exclusive with Griffith Rubber Mills and costs no more than a standard covering.

QUALITY SERVICE 47 YEARS

Griffith® RUBBER MILLS

General Office
2439 N. W. 22nd AVENUE
PORTLAND 10, OREGON
Telephone: CApitol 3-7126

FOR CONTROLLED OPACITY

...start with the right pulp!

The desired opacity in paper depends, of course, on many variables—but one of the most important requirements for good opacity is the correct choice of the correct pulp.

Leading paper makers for 50 years have come to us for scientifically correct SOLKA® Pulps—made to match the exact needs of their fine specialty papers.

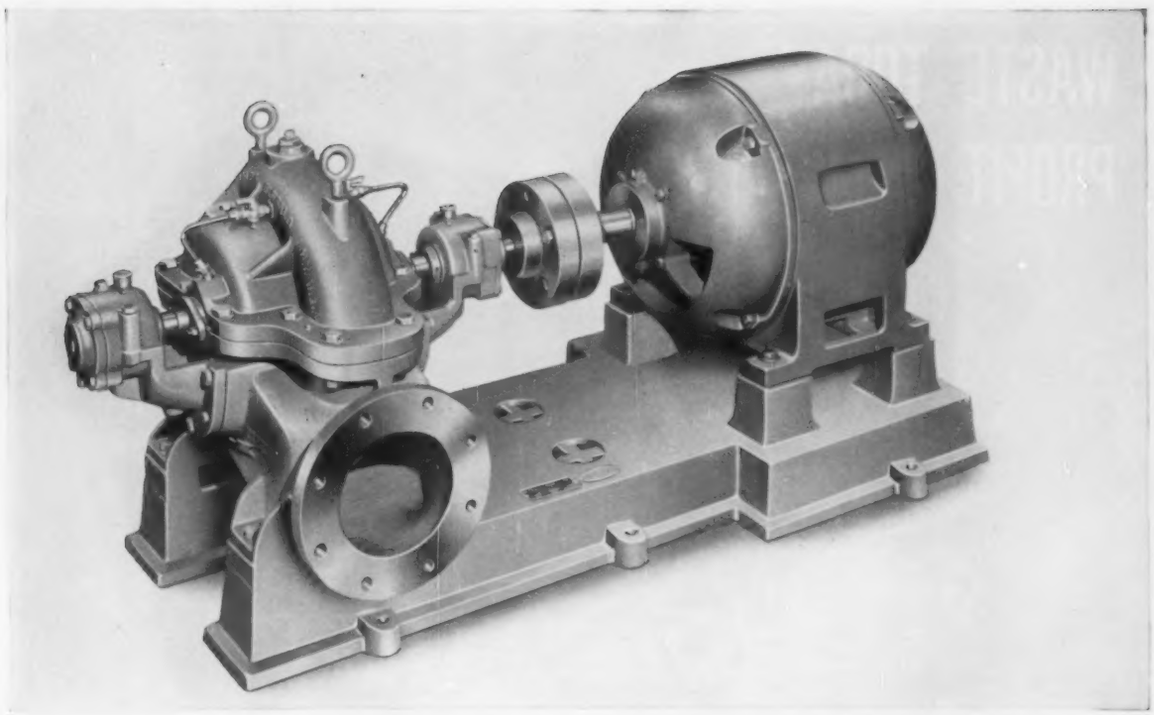
Whether your objective is opacity, bulk, dimensional stability, high brightness, superior reproduction, or whatever, there are engineered SOLKA Pulps to help you achieve them superlatively well.

Our research facilities, technical personnel, and modern manufacturing plants are at your service. Let us know your problems. Write Dept. CP-10, our Boston office. In Canada, Brown Forest Products Ltd., Castle Building, Montreal.

BROWN COMPANY

150 Causeway Street, Boston 14, Massachusetts

Mills: Berlin and Gorham, New Hampshire



"Buffalo" Double Suction Pump

SPECIAL "BUFFALO" FEATURES IMPROVE WHITE WATER PUMPING EFFICIENCY, DEPENDABILITY

"Buffalo" manufactures a complete line of centrifugal pumps, time-proven throughout the paper industry for their ability to perform with the utmost efficiency, economy and reliability.

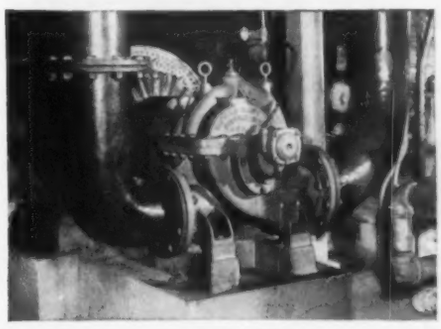
For instance, "Buffalo" Class "SL" Double Suction, Single Stage Pumps for white water service feature enclosed impellers and lateral type casing wearing rings to insure peak performance and long, trouble-free life.

It is impossible for particles to become lodged in these lateral type rings. This prevents costly mechanical complications resulting from an overloaded motor caused by an abnormal brake load on the shaft.

Suction and discharge openings are located in the lower (fixed) half of the casing. This permits removal of the upper section of the casing for quick, easy, inexpensive inspection and servicing. Entire shaft and rotor can be replaced as a unit.

Ask your nearby "Buffalo" Engineering Representative about the many other advantages of "SL" Pumps for white water service, or write for Bulletin 955-S.

The "Buffalo" Class "SL" Double Suction Pump is only one of a complete line of pumps designed for the wide range of liquid-moving jobs in paper mills. For full information, write for the Bulletin covering *all* "Buffalo" Pumps for the Paper Industry—No. 953-K.



"Buffalo" No. 8 "SL" Pump for White Water Service. Shows quickly removable upper section of casing to facilitate inspection. Also note clean lines of suction piping.

SPECIAL CONSTRUCTION for Special Paper Mill Conditions.
Example: For Bull Screen or grinder service in ground wood mills, "Buffalo" provides a special sealing ring construction for white water pumps. This clear water sealed type ring will force out any material, including resins, that may accumulate.

"Buffalo" Pumps give you the famous "Q" Factor — the built-in QUALITY that provides trouble-free satisfaction and long life

BUFFALO PUMPS
Division of Buffalo Forge Co.

"Buffalo" PUMPS

220 Mortimer Street • Buffalo, N. Y.
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A BETTER CENTRIFUGAL PUMP FOR EVERY LIQUID

WHEN YOU DE-INK WITH . . .

d-i LESTOIL
LIQUID DETERGENT

D-I LESTOIL

1. Dissolves and disperses ink, wax, oils, asphalt, fillers and other contaminants.
2. Promotes rapid and complete defiltering — makes fibres free-flowing.
3. Keeps entire system clean — helps prevent slime deposits.
4. Prevents soil deposits and build-ups on wires, Yankee Dryers, etc.
5. Is ideal for washing felts — on or off the machine.

Want to get good, clean, low-cost furnish from mixed wastepapers or other low-grade materials? — Or from rope, rags, cotton linters or cotton mill sweeps? Want a cleaner, clearer sheet with a look of quality that spells profit?

d-i LESTOIL can help you do it — without expensive formulas, without changes in your present equipment and at a saving in time, labor and power.

d-i LESTOIL combines thorough wetting, penetrating, emulsifying and dispersing actions. Added to stock in the boiler or pulper, it quickly and thoroughly removes ink, grease, wax, asphalt, adhesives and other contaminants, and prevents their redeposit in the stock.

What's more, d-i LESTOIL promotes rapid and complete defibering of paper stock, and helps keep your felts, wires and your entire system whistle-clean.

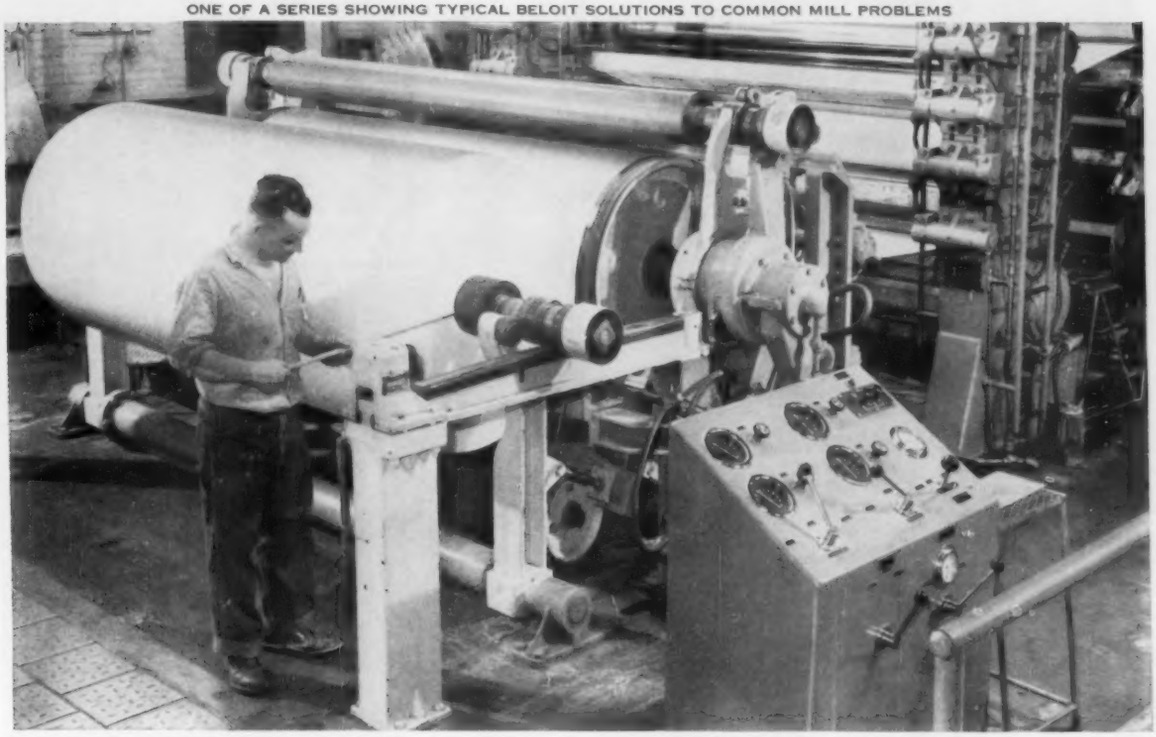
Why not find out — at our expense — what d-i LESTOIL can do for you? For a generous free sample and descriptive literature, write today to

ADELL *Chemical Company*

HOLYOKE, MASSACHUSETTS

BELOIT UNIT MODERNIZATION

ONE OF A SERIES SHOWING TYPICAL BELOIT SOLUTIONS TO COMMON MILL PROBLEMS



Beloit horizontal pneumatic reel for 108" fine papers machine at Wausau Paper Mills, Brokaw, Wis.

Losing paper because of poor starts at each transfer?

Roll bouncing and chattering against reel drum?

Roll hardness varying from spool to outer layer?

Sheet shifting and wrinkling on reel drum?

Now—5 Beloit Rail-Type Reels to help you solve these problems

If your present reel creates any of the problems listed here you can easily justify the low cost of a new Beloit reel. Beloit—originator of the rail-type reel—now offers five separate models. Each model is engineered by Beloit's experienced technical specialists for specific grades, widths, and speeds.

Beloit Rail-Type Reels Feature:

• Smooth shockless transfers—no loss of paper at roll center • Uniform-density rolls from spool to outside layer • Positive loading of roll in *both* primary and secondary positions • Cross-shaft connected primary and secondary arms for even reeling • Heavy rigid framework to eliminate chattering and maintain precision alignment • Large-diameter parent rolls up to 88" diameter . . . save winder-threading time • Beloit custom controls.

»ACT! *Write today for full information about the new Beloit reel for your machine.*

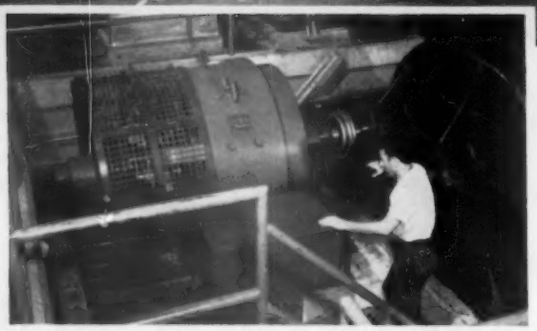
100 YEARS

BELOIT

PAPER MACHINERY

your partner in papermaking

Reliance Drive at Mead



Mead Corporation supercalender located in their Kingsport, Tennessee plant. Inset shows the 500 hp. main drive motor, one of the three motors used in Reliance Supercalender Drives.

A Reliance Supercalender Drive keeps downtime for threading to a minimum for Mead by maintaining stable threading speeds. Threading-up is a fast and safe operation because the Reliance Drive accurately holds the 40 fpm. threading speed.

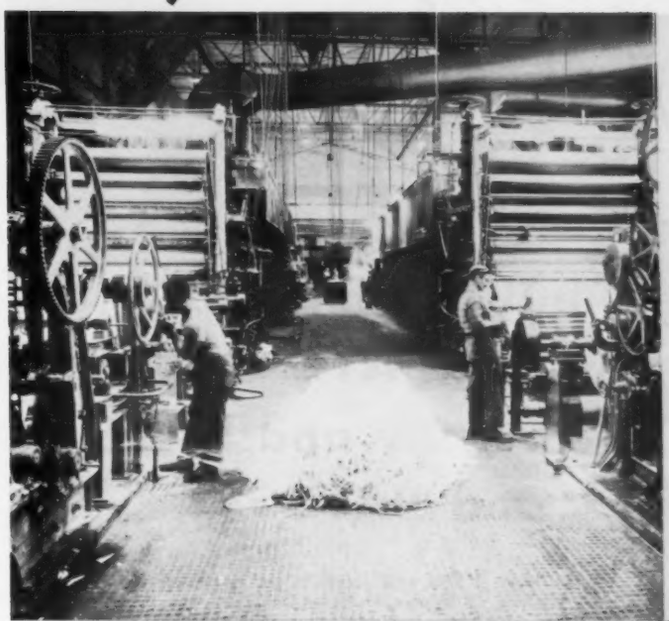
This accurate speed control is not limited to low speeds. The Reliance Supercalender Drive regulates speeds exactly through the entire speed range of the machine, all the way up to the 2000 fpm. top speed.

Other features of Reliance Supercalender Drives include break-away torque for smooth starts, precise tension control for good paper quality and good roll taper, wind and unwind from top or bottom of roll. These and many other features are explained in the Reliance Supercalender Drive Bulletin L-2507. Write for your copy today. L-1675

RELIANCE ELECTRIC AND ENGINEERING CO.

Dept. 183A, Cleveland 17, Ohio
Canadian Division: Toronto, Ontario
Sales Offices and Distributors in principal cities

Gould Paper Company converts 3 Paper Machines to Norgren® MICRO-FOG® Lubrication



MICRO-FOG Lubrication for No. 1 and No. 2 machines at Gould Paper Co. has reduced bearing temperatures 10°F to 20°F.

Norgren MICRO-FOG® Gives Gould These Benefits:

- Bearing temperatures reduced as much as 50°F
- Frequent bearing failures ended
- Hand oiling eliminated
- Excessive lubrication maintenance ended
- Lubricant consumption greatly reduced
- Fire hazard removed
- Perfect lubrication for all bearings
- Lubrication continuous and automatic
- Product contamination eliminated

Gould Paper, plagued with excessive down-time due to unsatisfactory lubricating methods, investigated all available centralized lubrication systems. As a result, early in 1957, they converted 368 bearings on three paper machines to Norgren Micro-Fog lubrication.

Micro-Fog has reduced bearing temperatures as much as 50° F. Average operating temperature of 85 half-plain bearings has dropped from 189° F to 139°F.

Micro-Fog has cut oil consumption more than 66%. In addition, the cost of hand oiling and block grease replacement has been eliminated. Also eliminated are the extra maintenance, lost production and fire hazard caused by the dripping of lubricant.

For all the details—

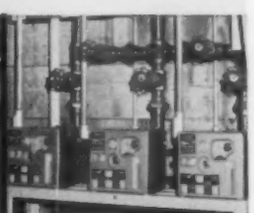
WRITE FOR FREE BULLETIN: MF-26

If it's Norgren... It's Dependable.

C. A. NORGREN CO.

3458 SO. ELATI STREET • ENGLEWOOD, COLORADO

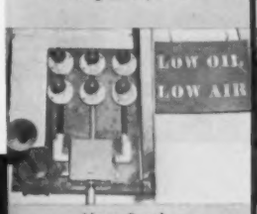
MICRO-FOG Units for machines No. 1 and No. 2.



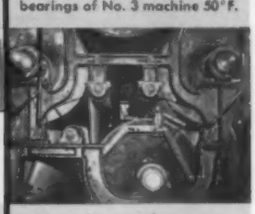
Three MICRO-FOG Units serving the No. 3 machine.

MICRO-FOG lubricated Timken bearing on dryer rolls.

MICRO-FOG reduced temperature on dryer roll bearings of No. 3 machine 50°F.



Alarm Panel—MICRO-FOG Units warn of conditions affecting proper lubrication.



MICRO-FOG lubricated bearings.

THE MILL THAT PAYS and PAYS and PAYS

No matter how well designed the dryer section of a paper machine, it becomes a more effective dryer with a Fulton fully-automatic Drainage System added. That is why paper machine builders recommend Fulton Dryer Drainage Systems, regardless of type, size, age or speed of the machine or the grade or grades it was designed to produce. About 1000 Fulton Dryer Drainage equipped machines confirm that statement.

The benefits, as all machine builders and legion of superintendents well know, include automatic control of drying operation; substantially higher drying speed; more uniform drying — far less broke.

On today's high speed machines Fulton fully-automatic systems are a "must" — no time to make manual adjustments. On other machines they are not a "must" but they are a "should" — return their cost over and over again.

Technical bulletin — tells all.

ROSS MIDWEST FULTON CORPORATION **DAYTON, OHIO • U.S.A.**

A Unit of J. O. Ross Engineering Division MIDLAND-ROSS CORP.

Representatives: James Brinkley, Seattle 4; Clark & Vicario, North Tarrytown, N.Y.

Ross Engineering of Canada Limited — Montreal • Fredericton • Toronto • Port Arthur • Vancouver

Good Service *provides a three-way benefit*

1. It benefits our customers who receive more for their felt dollar ... *"The other day we removed your felt #92681 from the machine after it had produced nearly twice the tonnage of any other felt. We think this is quite an improvement. The felt ran perfectly and 4-D treatment is great".* (From customer's letter.)

2. It benefits our stockholders ... *"Good dividends and expanding sales make my Huyck stock an outstanding investment". P. S. "I LUYCK HUYCK".* (From stockholder's letter.)

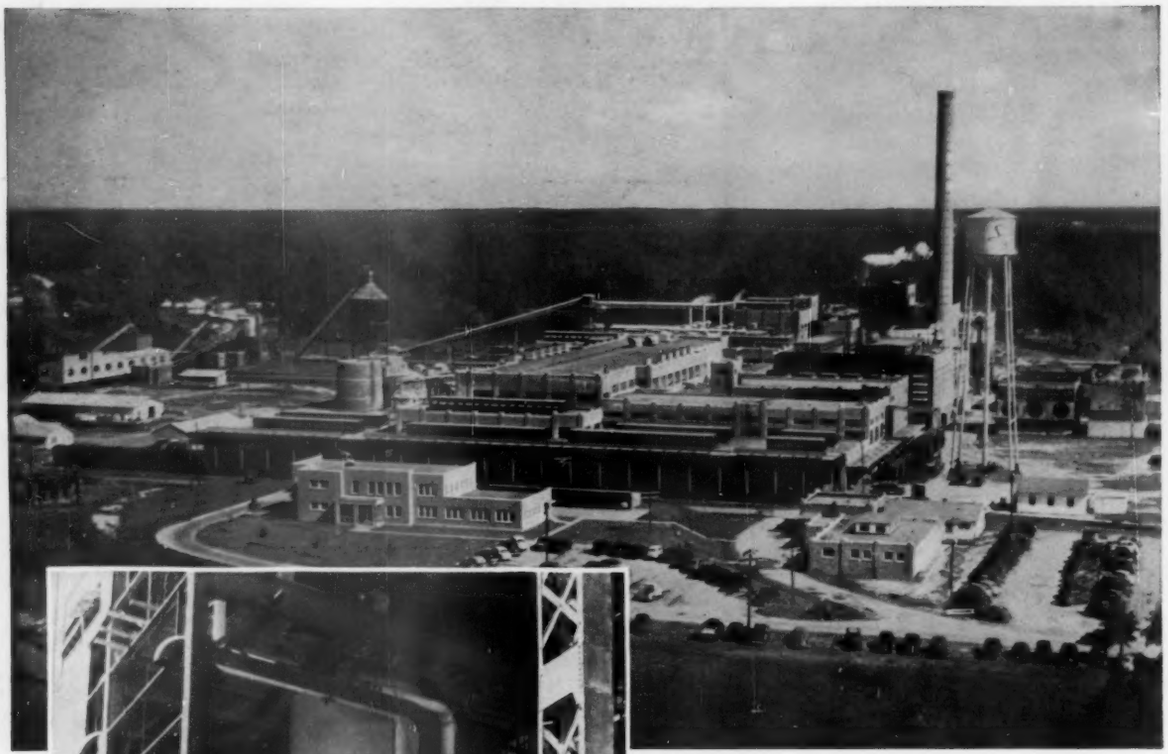
3. It benefits Huyck ... *"As in 1955, the percentage increase in our own shipments again exceeded that for the industry as a whole, indicating that we are continuing to improve our competitive position in our most important field".* (From Huyck's Annual Report – 1956.)

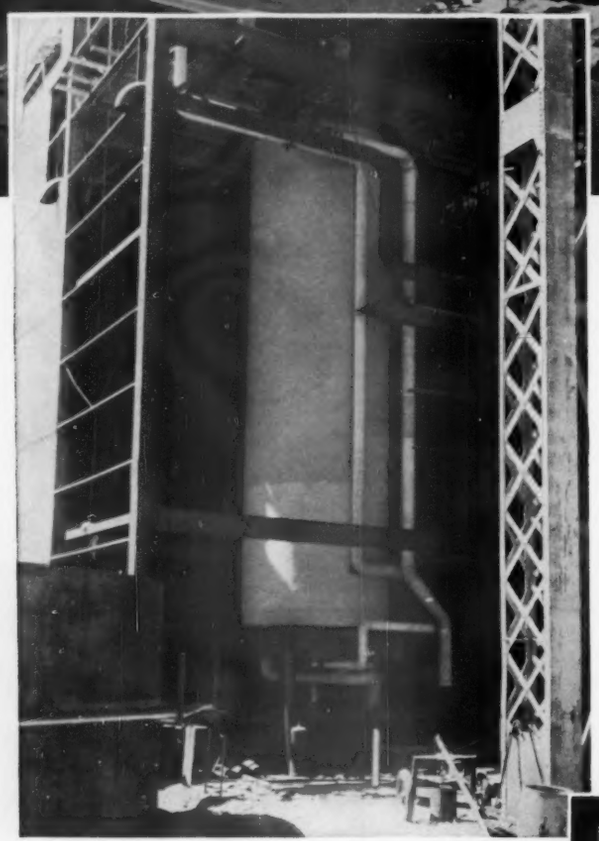
KENWOOD TEXTILE PRODUCTS

F. C. Huyck & Sons, Rensselaer, N. Y.;
Aliceville, Ala.; Peterborough, N. H.
In Canada: Kenwood Mills Ltd., Arnprior, Ontario

NEW HUYCK FELTS ★ INDUSTRIAL FABRICS

FIRST IN QUALITY • FIRST IN SERVICE SINCE 1870

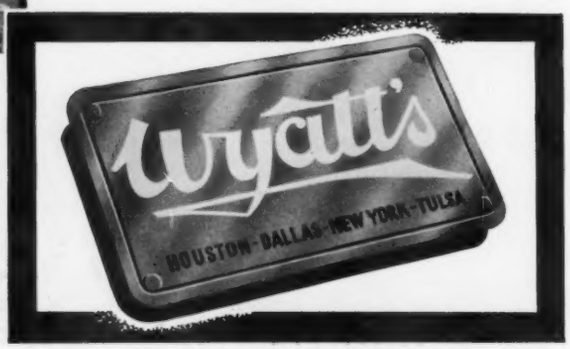




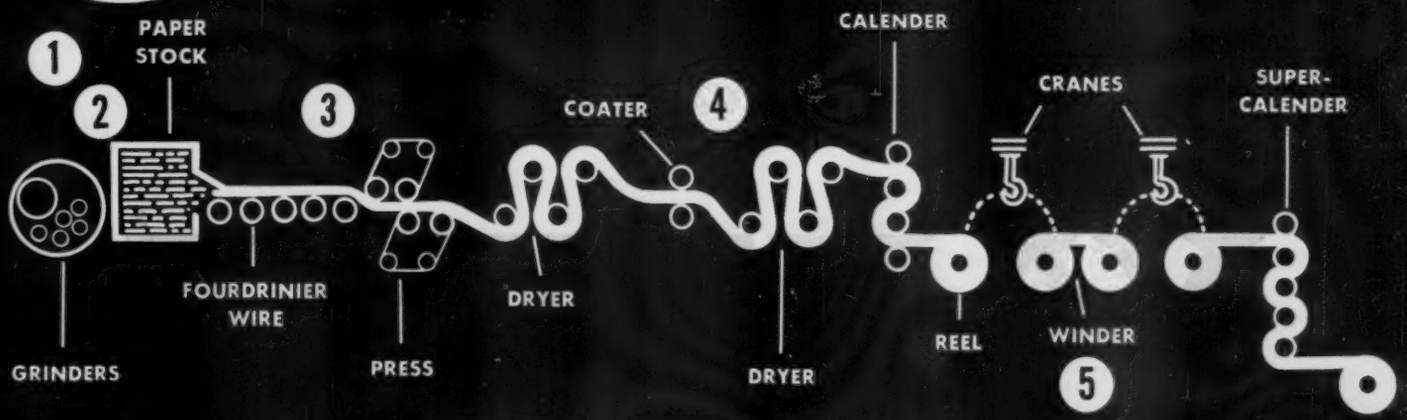
A Digester — Recent Installation at the Lufkin, Texas Plant.

From First Construction through Later Expansion Wyatt's Fabricated Steel Products Have Had a Role in the Growth of Southland Paper Mills, Inc.

WYATT METAL & BOILER WORKS, INC.
MANUFACTURERS AND ERECTORS SINCE 1913
and
WYATT'S PLASTICS, INC.
MOLDERS AND FABRICATORS OF PLASTIC AND RUBBER PRODUCTS

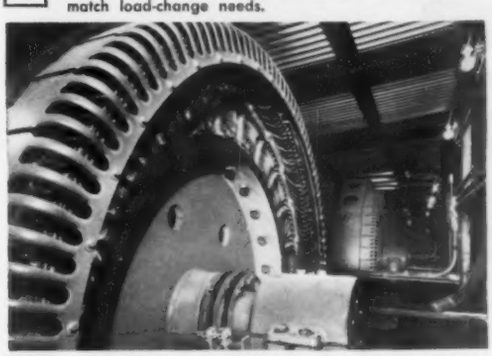


OPERATION upturn
Buy now for extra values
GENERAL ELECTRIC

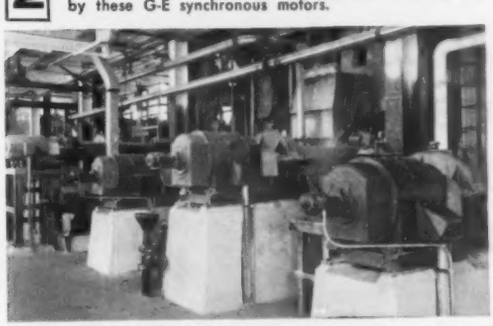


Hi-speed paper production requires a dependably coordinated electrical system engineered to handle continuous process operations.

1 **SYSTEM FLEXIBILITY** is provided by this General Electric unit substation which can easily be enlarged to match load-change needs.



2 **"MUSCLE POWER" FOR PULP GRINDERS** is furnished by these G-E synchronous motors.



3 **DEPENDABLE SOURCE** of precisely controlled adjustable speed power is supplied to press section by General Electric d-c drive motors.

4 **PROTECTION AND OPERATION** of the mill's coater section is supplied by these convenient, accessible enclosed control panels.

General Electric equipment will help Consolidated Water Power & Paper Co.'s Biron, Wisc., mill . . .

Produce enamel printing paper at speeds up to 2000 FPM

G-E co-ordinates power and drive equipment for $15 million mill expansion—adds 60,000 tons of annual capacity

Consolidated Water Power & Paper Company's newly expanded enamel printing paper mill, located at Biron, Wisconsin, represents another investment in meeting the printing industry's growing demand for high quality paper.

Principal feature of Consolidated's $15 million expansion program is a new paper-making machine capable of producing more than 60,000 tons of the highest quality stock annually.

General Electric played a major part in the expansion program. G-E equipment was selected throughout to supply, distribute and control the power to keep production rolling. Co-ordination of the equipment into a flexible, easy-to-expand electrical system—designed to meet the mill's special needs—resulted from close co-operation between Consolidated Water Power & Paper and General Electric application engineers. And careful supervision of the equipment's installation by General Electric field-service engineers helped meet mill construction schedules, expedited early start-up and profitable production.

To meet your specific production needs, too, General Electric engineering services can help design, equip and install a co-ordinated electrical system—from one-line diagram to on-time start-up. Early in your planning, call your nearest General Electric Apparatus Sales Office. Meanwhile, write for bulletins GEA-6508 on paper-mill drive systems and GEA-5521 on paper-mill power systems to General Electric Co., Section 655-22, Schenectady 5, New York.

Engineered Electrical Systems for the Paper Industry

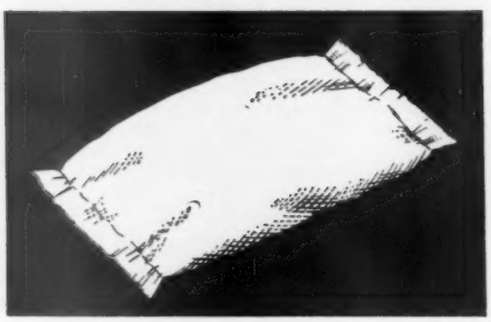
GENERAL ELECTRIC

5 **OPTIMUM DRIVE POWER IS DEVELOPED** by these General Electric motor-generator sets consisting of D-C generators and amplidynes.

VANZYME®

SOL-PAKS

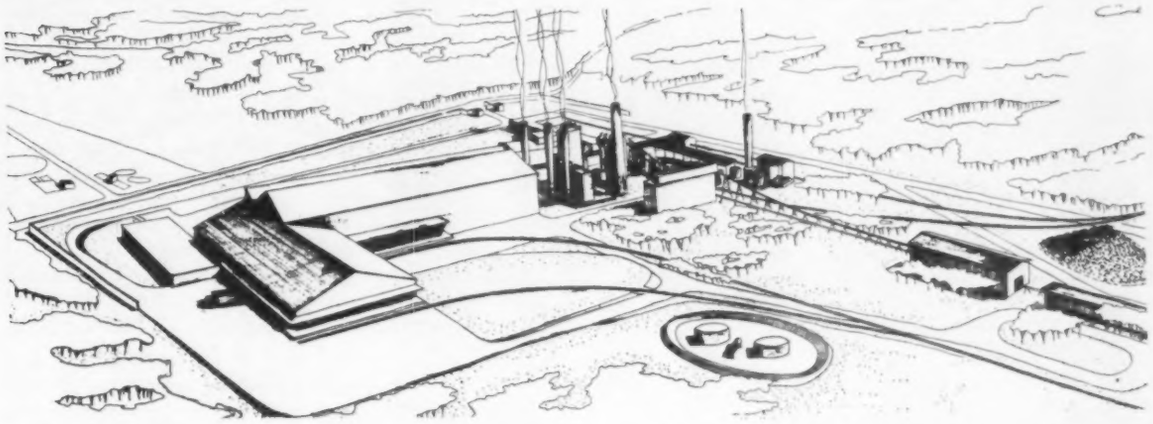
Starch Liquefying Enzyme
in water soluble packets



Accurately pre-weighed quantities
of standardized Vanzyme powder
to convert starches
for tub and calender sizing, machine
coating and laminating adhesives.

R. T. VANDERBILT CO., Inc.

230 PARK AVENUE · NEW YORK 17, N. Y.



BLEACHED EUCALYPTUS KRAFT PULP MILL (140 metric tons per day) being built by Panamericana Textil, Brazil

Hews Mill Out of Jungle

Champion's new market pulp mill, 80 miles from Sao Paulo, nears early 1959 completion. U.S. experts to handle startup.

William R. "Bill" Crute, honorary vice president of Champion Paper & Fibre Co. and manager of its Texas operations for 17 years, is presently in Mogi Guassu (or Guaço), a village in Brazil, 80 jungle miles from Chicago-size Sao Paulo, directing construction of a market bleached kraft pulp mill.

This mill is partly financed and will be wholly operated by Champion.

Mr. Crute has taken up this new exciting and challenging project, at the age of 75, four years after he retired as Texas manager. Mr. Crute, who joined Champion as supt. of power at Canton, N.C., in 1917, is repeating in the lush highlands of Brazil the job he did for Champion back in 1936, when he designed and built the pulp mill at Pasadena, Tex.

WILLIAM R. CRUTE . . . . it's a long way from Farmville, Va., where he was born 75 years ago, to jungle highlands of Brazil.

The new mill in Brazil will make 150 tons a day of bleached kraft pulp for sale to paper mills in that region.

Most machinery is on hand for the Brazil mill. It will start up in early 1959.

Presently, practically all woodpulp shipped to overseas markets by Champion is made at the Texas Division. Bleached and semi-bleached kraft are shipped to the Caribbean, to South America, where Chile is a leading customer, and to Germany, France, Belgium, Italy and England. Occasional shipments are made to the Middle East.

Less Wood Area Than in U.S.

Eucalyptus will be an important raw material for Champion's Brazilian mill. It is an amazing one, too. PULP & PAPER learns from its correspondent in Brazil that eucalyptus was brought to Brazil and planted there to provide wood to fire the early day Brazilian locomotives. Now diesels are used and the wood is available for the rapidly growing Brazilian pulp and paper industry. The eucalyptus, they say, grows faster there than in Portugal and other Latin countries where original plantings came from. It can be cut in six to seven years in Brazil. Much pine is, and will be planted, also, in this area of Brazil. Only one-third the woodlands required for a U.S.A. mill is needed for a Brazil mill.

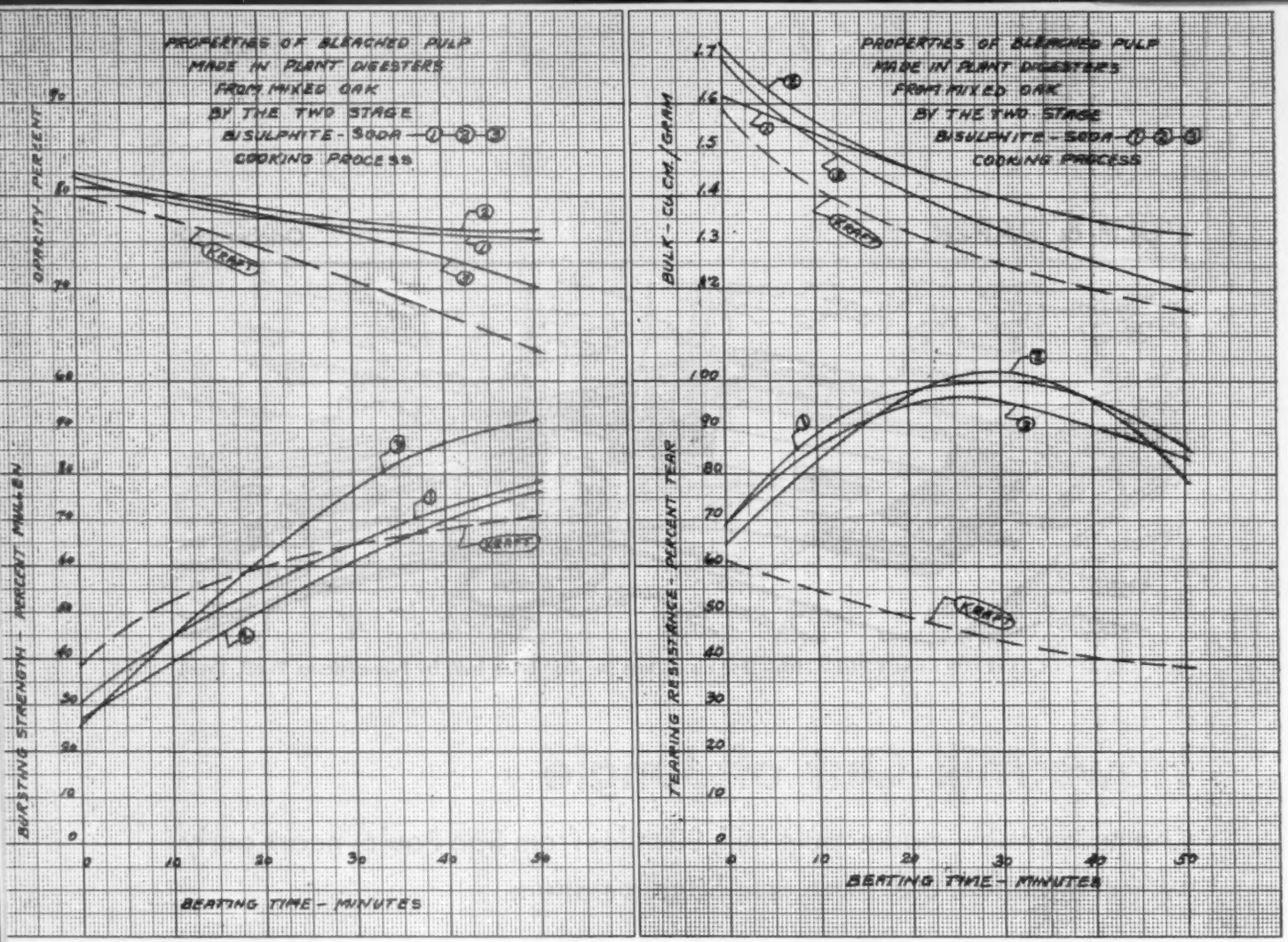
Panamericana Textil, S.A., is the company sponsoring the mill. Mike Walsh, in Sao Paulo, is president. Champion acquired an interest in the company early in 1958, and has sole managerial responsibility. A cadre of Champion supervisors, engineers and technicians will go to Brazil for the startup, but later most of the force will be Brazilians.

A chemical recovery system and chlorine and caustic soda facilities are also being built at Mogi Guassu.

Stadler Hurter International Ltd., Montreal, are consulting engineers on the project. M. A. Campbell is resident engineer for Stadler Hurter.

Five U.S. Groups Build in Brazil

W. R. Grace & Co., planing a kraft mill by 1960 using Paulista Railway's eucalyptus stands; Parsons & Whittemore and Black-Clawson, with an interest in expansion of the Federal de Fundicao mill; Olin Mathieson, with a pulp and paper mill at Lajes (Olinkraft, S.A.), and West Virginia Pulp & Paper Co., with a growing subsidiary, Rigesa, S.A., are other U.S. companies now in the pulp and paper manufacturing industry in Brazil.



STRONGER THAN KRAFT and with higher opacity, bulk and tear, this . . .

2-Stage Cook and Recovery

opens new vistas for sulfite industry, as it combines with standard kraft recovery and chemical conversion plant

Highlights of New Process

After more than five years of successful mill operation here are outstanding features of this versatile process which yields a pulp with strength of kraft and bleaching ease of sulfite.

1. Either softwood or hardwood may be pulped to high quality product.
2. Hardwood may be substituted for softwood with reduction in wood costs.
3. Results from bisulfite-soda process show a higher yield for pulps of equivalent compared to other processes replacing calcium base.
4. Unbleached pulp has higher brightness; lowering bleaching costs; ultra high brightness can be achieved with fewer steps.
5. Stream pollution abatement is comparable to that in a kraft mill.
6. Air pollution is virtually eliminated due to closed process cycle. Odor level is low.
7. Overall thermal efficiencies are high due to steam generated in recovery unit. Heat in digester is recovered also by conventional blow-flashing procedure.
8. Six years practical application on a 200-ton plant scale has proven efficient operation with minimum operating personnel.
9. Convenient plant layout places conversion unit adjacent to primary recovery, thus allowing a single instrument and control center.

• Developed by the international sulfite authority, George Sivola of Helsinki, Finland, shortly before World War II, the Sivola process was adopted in 1952 by Rauma-Repola, Oy, of Rauma, Finland. This mill had decided to convert a calcium base sulfite operation to sodium base for making dissolving and high grade paper pulps. Initial capacity of 50,000 metric tons per year has been upped to 70,000 metric tons.

Operations have been successful right from the start, but it wasn't until the TAPPI Alkaline Pulping Conference held at Hot Springs, Ark., this September that wraps were taken off the process.

Pulping

Sulfite pulp is cooked in two stages without reducing pressure and tem-

perature between stages. Cooking process consists of sodium bisulfite first stage, followed by an alkaline stage without interrupting cooking in the same vessel. Most delignification occurs in the first stage. In this stage, of five to six hours, the digester is brought up to cooking temperature of 300°F. using sodium bisulfite. In the second stage of one to two hours, temperature is raised to 330° using sodium carbonate.

Sufficient liquor is drained off during and at the end of the first stage to introduce under pressure the carbonate. The pH is raised from 4.5 to 5. to 8.5 or higher in the second stage.

Chemical Recovery

The Sivola process is similar to a conventional kraft recovery cycle and may be operated in conjunction with kraft or semichemical mill in which case the liquor may be mixed and burned in the same recovery unit. Main difference is that the Sivola process does not require any causticizing; consequently no lime reburning equipment is needed.

Chemical Conversion

Green liquor from the dissolving tank is clarified and fed into the specially-designed Sivola process conversion unit comprising a primary group of towers for carbonating the green liquor.

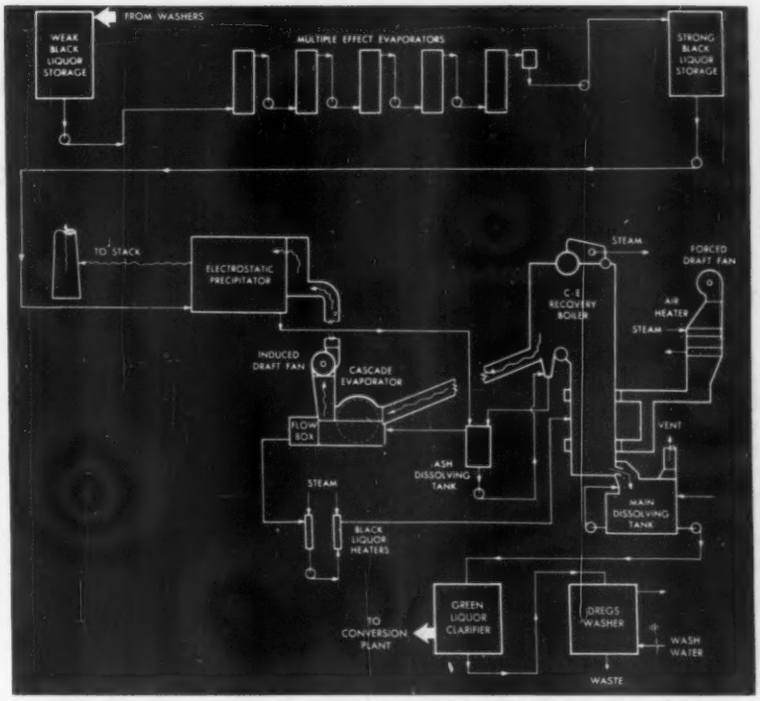
A second group of towers produces sodium bisulfite from sulfur dioxide formed by burning the hydrogen sulfide liberated in the carbonation phase and from the sulfur dioxide stripped from the digester relief gases.

Hydrogen sulfide and make-up sulfur are burned in a special unit to sulfur dioxide. Make-up soda ash is introduced into the conversion system preferably before one of the streams goes to the mixing reactor.

Carbon dioxide for carbonating the green liquor is recovered here and from other points in the conversion process.

Combustion Engineering, Inc. is the licensee for North America and The Lummus Co. is consultant-designer for the chemical conversion plant.

The four authors of the paper on this process presented at the Hot Springs TAPPI meeting were Dr. Trueman Pascoe and J. S. Buchanan, of Nekoosa-Edwards Paper Co., which has successfully used this process to pulp Lake States hardwoods and jackpine; Gene Kennedy of Combustion Engineering; and Mr. Sivola.



SIVOLA PROCESS PRIMARY RECOVERY SYSTEM

Gilbert to Have New Fourdrinier Machine

Gilbert Paper Co., Menasha, Wis., will have a new No. Fourdrinier paper machine, replacing its old No. 2. The new No. 2 is scheduled for startup next spring. It will have 30% greater capacity.

The new machine will be wider and faster. It will be 108 in. wide, 94 in. trim. The old 100 in. machine trimmed 86, usually, or could go to 88. The wider machine will be more efficient for meeting customer needs.

A breaker stack and a horizontal press will be important new features of the new No. 2. "These will give us greater flexibility," explained President Ted Gilbert. There will also be many new papermaking control features.

TED GILBERT, president, says new machine will be faster, wider, more flexible.

Valley Iron Works, Appleton, Wis., is essentially the builder of the new machine, providing all main parts.

It will make ledger, index bristol and other heavier weight papers.

Hudson Falls Celebrates Sandy Hill 100th Anniversary

Sandy Hill Days, a three-day celebration in August sponsored by the Chamber of Commerce of Hudson Falls, N. Y., honoring the 100th anniversary of the Sandy Hill Iron and Brass Works, turned into the biggest celebration in the community's history. Sandy Hill, one of the country's leading producers of pulp and paper making machines, is the town's oldest major industry.

Service organizations, officials, and business and industrial leaders joined forces in festivities which started with a street dance and ended with a mammoth two-hour parade. Open house was held at the Sandy Hill plant. A plaque was presented to J. Walter Juckett, Sandy Hill president, from the chamber of commerce.

A Period of Belt Tightening

and capacity digestion lies ahead for the woodpulp industry

By LAWSON P. TURCOTTE
President, Puget Sound Pulp & Timber Co., and Ketchikan Pulp Co.

• Belt tightening and capacity digestion now required of the woodpulp industry can be taken in stride, provided sound expansion and marketing policies are followed. Any gearing of production substantially over demand could only result in chaos.

Historically it is normal for pulp consumption to increase about 4 or 5 per cent a year. Over the years, capacity expansion has been about in line with this growth. In the postwar period, however, pulp-making capacity has been increased faster than the demanl for it.

Nineteen Fifty Six was the industry's record year to date, with stated capacity at 24.2 million tons, domestic production of all grades of pulp at 22.1 million tons, and consumption at 23.9 million tons. These peaks represented a 10-year increase of 12.1 million tons in capacity, against gains of only 11.5 million tons each in domestic production and consumption.

From the 1956 heights there was a slight recession in 1957, and a further decline is in the making for 1958. And yet, since 1956 there has been a further expansion in pulp-making capacity of some 4 million tons.

Calls For Realistic Survey

Fortunately, no important additions to capacity are in the making for 1959 and 1960, although some investment in improvements will be completed. After that period, a realistic survey should be made before any extensive new expansion is launched. As those in the industry well know, pulp-making calls for heavy capital investment; big expansion projects cannot be entered into with the casualness of a shoe-string operation.

There are indications that pulp consumption will resume its upward trend soon, by 1960 if not in 1959. Static consumption has never extended over more than two or three years. But the upturn when it comes will have considerable ground to regain if the historical rate of growth is to be maintained. Having in mind that a yearly increase of 3, 4, or 5 per cent is normal, when consumption declines 5 per cent, as at present, the industry is 8 to 10 per cent behind its Twentieth Century trend. It may take until 1962 for paper and paperboard consumption of woodpulp to catch up with the normal, long-term trend.

The current increase in per capita consumption of paper and paperboard in foreign countries, particularly in Europe, is a favorable development of real importance. Increase in consumption of market pulp during the past decade has been more in other countries than in the United States. It is expected this trend will accelerate.

Significant Six Month's Figures

Pulp production by United States mills totaled about 10,533,000 tons in the first six months of 1958, a 4.6 per cent drop from the year-ago total of 11,042,000 tons. Imports, estimated from incomplete data, suggest 978,000 tons arriving in the first half of this year, 6 per cent less than last year's 1,041,000 tons. Six months' export of American-made pulp were down 16 per cent, 270,000 tons this year vs. 322,000 tons last year.

Consumption and additions to inventory during the January-June period totaled 11,241,000 tons this year, 4.4 per cent off from 11,761,000 tons last year. June 30 inventories at producing mills were 63,000 tons higher than a year ago. This indicated consumption of wood pulp totaling 11,178,000 tons in the 1958 first half, against 11,736,000 tons in the 1957 period.

Outlook Good, but Needs Planning

Considered by themselves, current pulp tonnages are impressive, not the highest of record, but close to the top But the good health of the industry demands that we relate tonnages with manufacturing ability to meet demand —in other words, capacity. For the good of the industry, it should come considerably closer to utilizing existing capacity before embarking on further expansion.

Any material improvement in the domestic supply-demand situation is not expected for the remainder of this year at least. This statement should not be regarded as a note of pessimism. Year after year, the growth rate of the pulp industry has outdistanced the nation's over-all industrial growth. The pulp industry today enjoys a high standard of operating efficiency. While it is subject to the effects of general business and industrial conditions, it also stands to benefit from the inevitable growth in population, and benefit further from introduction of new uses for pulp.

LAWSON P. TURCOTTE—"Pulp is 8% to 10% behind its 20th Century trend."

About the Author

Mr. Turcotte, who wrote this survey especially for PULP & PAPER, often has been requested by industry associations to analyze woodpulp trends. His company reports are widely quoted because they usually graphically portray the worldwide or national picture.

Born in Grand' Mere, Que., in 1896, he spent his youth in Quebec and Alberta. He served overseas in the Canadian Army in World War I. He joined a predecessor company of Puget Pulp in Bellingham, Wash., in 1936, starting as accountant and general assistant to the founder, Ossian Anderson, who spearheaded the growth of a new world market woodpulp industry in the United States over 30 years ago.

Mr. Turcotte was elected treasurer of Puget Pulp in 1934 and has had the longest service of any officer in that company. He became executive vice president in 1942 and president in 1951, and a couple of years later also became president of Alaska's first major year-around industry, Ketchikan Pulp Co. He is a former president of the Pacific Coast Assn. of Pulp and Paper Manufacturers.

DRUPA

Was Worth Seeing

By HOWARD E. WHITAKER
Chairman of the Board,
The Mead Corp.

Mr. Whitaker wrote this account of his visit to DRUPA especially for readers of PULP & PAPER. His color photographs, of course, necessarily lose some sharpness in being reproduced here in black and white.

• One of the most valuable rewards of our trip to Europe last spring was our visit to the DRUPA international printing and paper exhibition, held in Duesseldorf (West Germany) from May 3 to 16. Almost every manufacturer of printing presses in Europe had an exhibit, complete with the latest presses in operation. All the paper machinery suppliers were represented, as well as most of the paper and ink manufacturers.

Modern techniques of plate preparation and engraving were demonstrated, and all sorts of printing presses, composing machines, reproduction and screen process equipment, stereotyping and electrotyping equipment were displayed. We especially enjoyed several exhibits which showed the development of printing through the years, from very primitive methods to the latest, up-to-date machines.

We were also intrigued by an unusual exhibit of playing cards from the Bielefeld Museum, a demonstration of contemporary Bible printing in Germany and other countries, a survey of the development of the picture postcard and a display of contemporary bookbinding. The handsome catalog for the fair was an impressive exhibit in itself.

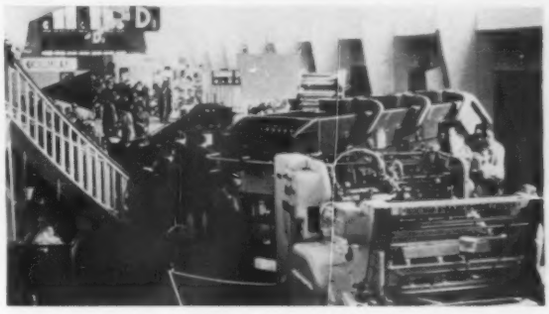
Although the admission fee was purposely set rather high in order to discourage casual sightseers, I understand the fair had a very good attendance, with some 388,000 visitors from all over the world. Over 600 firms had exhibits there.

As I understand it, DRUPA cirulates from year to year and is held in Duesseldorf every fourth year. The other cities in alternate years are Paris, Lausanne and London. They say the Duesseldorf show is always the largest one.

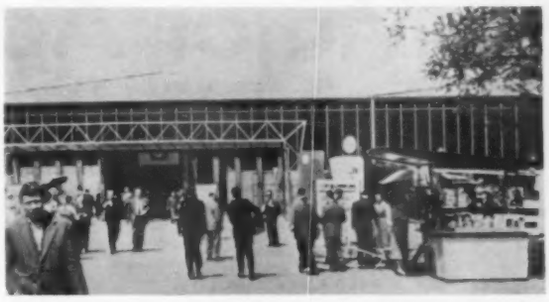
This year's DRUPA was staged in the Nowea exhibition park on the banks of the Rhine. There were eight exhibition halls, one of them a brand new building, and a good bit of open air space, so we got plenty of exercise trying to see as much as we could.

We felt it was certainly worth the time and expense to visit it. All told, it gives a pretty complete education in the latest developments in the graphic arts in Europe.

WEST GERMAN PAPER FIRM EXHIBIT AT DRUPA showed many of the firm's line of products which include Bible, book and many specialty papers. Papierfabrik Scheufelen is in Kirchheim, near Stuttgart.

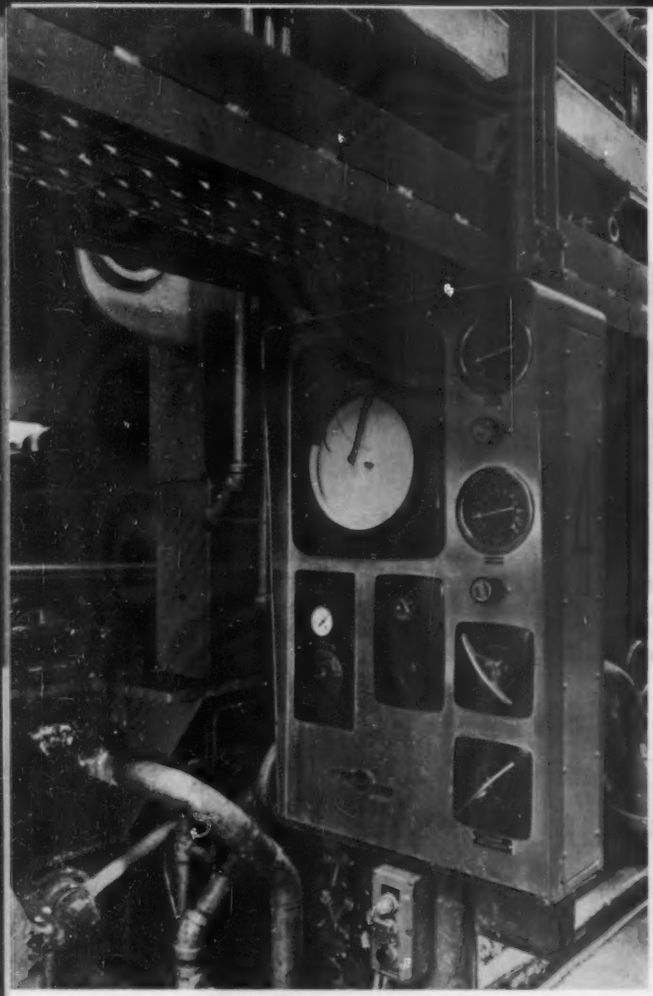


PRINTING PRESSES included medium and large presses for letterpress, litho and gravure. This is Hall D; printing presses were also in Hall B.

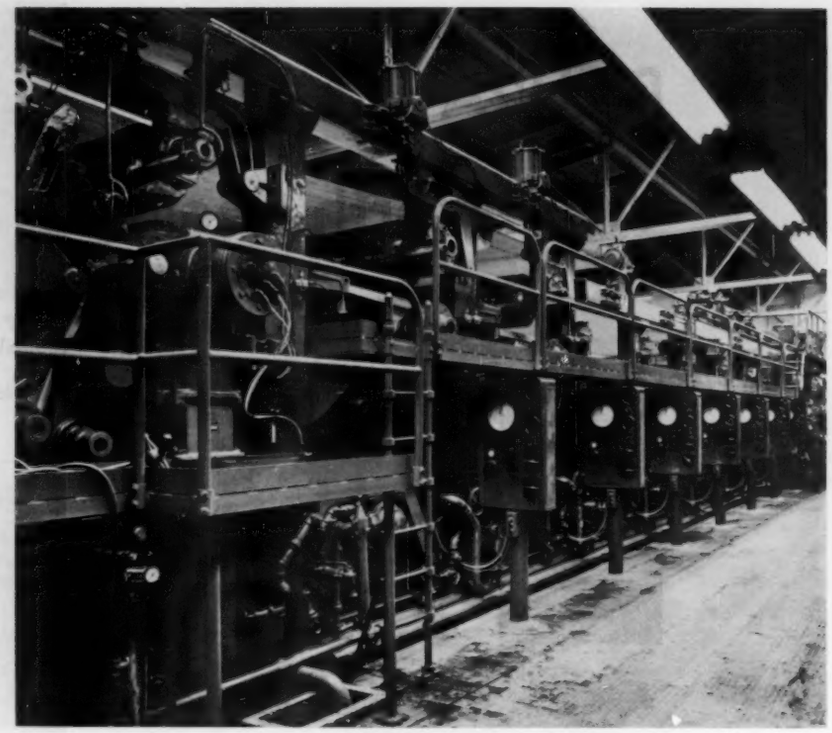


DRUPA EXHIBITION HALLS at Dusseldorf had a total area of 72,000 sq. m.

PAPER MILL WORKERS' VILLAGE in West Germany has trim homes and neat, well-cared-for yards and streets.



"BELOIT CUSTOM CONTROL" gives complete remote control of stock to Former.



SEVEN STEVENS FORMERS on one machine help make one of really new papermaking developments of this century.

A Major Advance

Is Achieved in Paperboard Making

as pioneering Michigan Carton Co., using 7 Stevens Formers on one cylinder machine, makes it perform like Fourdrinier

By ALBERT W. WILSON
Editor, PULP & PAPER

● Not just one, but seven so-called Stevens Formers make the almost completely new No. 2 machine at Michigan Carton Co. one of the genuinely new and significant papermaking developments of the 20th Century.

This statement is quite a mouthful, but as papermakers know, there have been precious few developments of really radical nature in papermaking in the past 60 years. Even if you go all the way back to the first machine of Nicolas-Louis Robert in France in 1799 and the improved model of Bryan Donkin in England in 1805, few fundamentals have changed. Unless, for example, a day comes when wires are not needed, no one really expects any great change in the machine room of a mill.

But this time, real pioneering has taken place.

The management of the 51-year-old Battle Creek, Mich., mill, manufacturers of clay coated, white patent, double bleached sulfite and other specialty boards, has done it again. Back in 1948, it stirred the industry by putting into operation "The Angel," longest paper machine in the world (an exclusive illustrated description of "The Angel" was published in PULP & PAPER, July 1949, p. 40). That 128 in. trim 8-cylinder combination board machine, was the first post-war machine to set important new quality standards and it is still a proud beauty of the Michigan Carton Co. mills. But compared with what they have done with No. 2 and its seven Fourdrinier style Formers, Michigan Carton Co. was not nearly as adventuresome ten years ago. This time they really stuck their collective necks out and it is paying off.

How It Works . . .

Stock is fed to a conventional counterflow vat cylinder machine by

gravity flow. At each of seven vats on Michigan Carton's No. 2 machine, stock is applied under control pressure to approximately 20% of the face of the mold, instead of all around the cylinder as in gravity feed. Each of the seven Formers operate under partial vacuum. The slice of the Fourdrinier is applied to cylinder papermaking. Operators say they have achieved a greater uniformity in paper quality and sheet levelness. Important is a strength factor, as by use of the Formers, fibers mat in all directions, heretofore accomplished only with Fourdriniers.

Samuel S. Stevens, general manager of mfg., Erving Paper Mills, Erving, Mass., is recognized as the inventor of the original former. (The story of his first former has only been published in PULP & PAPER, in an exclusive report in the Apr. 1957 issue, with illustrations.) Beloit Iron Works obtained the rights and has made a number of improvements.

But Michigan Carton has made history by putting seven Formers on a single machine.

Harrison Pennetti Kroeschell

IN CHARGE OF MACHINE REBUILD job was Dr. James J. Harrison, vice president in charge of board manufacturing at Michigan Carton. Nick A. Pennetti is supt. of Fountain St. mill, where No. 2 machine is located. William O. Kroeschell is technical director.

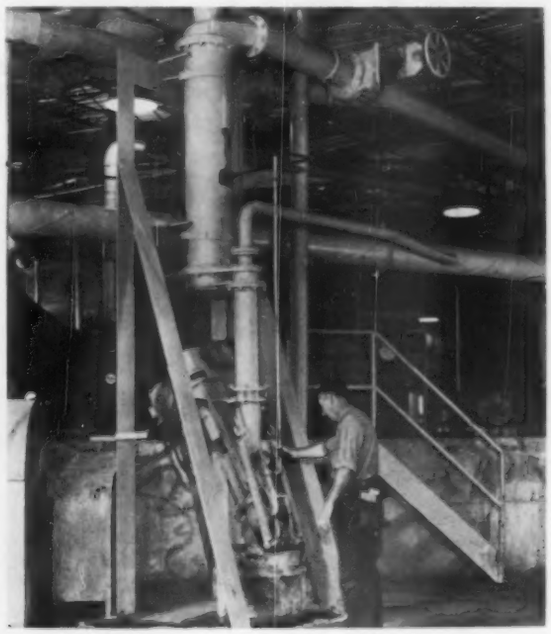
Stock Preparation Changes Involve Uncommon Feats in Engineering

• Coupled with the No. 2 rebuild job at Michigan Carton Co. were extensive changes and additions in stock preparations, and this involved some uncommon feats in paper industry engineering. Getting new equipment into the limited area allowed in the 50-year-old mill called for some adroit "shoehorning."

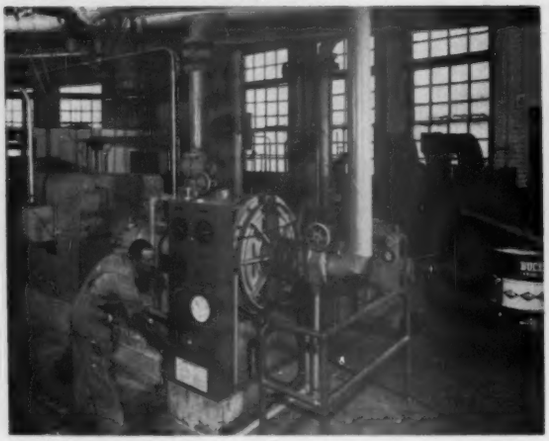
Installing a second Shartle Hydrapulper, equipped with ragger and junker, was actually an "under water" job. The location was below river level by 8 ft. It was necessary to put well points down and pump water out all the time.

The new Shartle Hydrapulper provides the filler stock for No. 2 machine, replacing an old breaker beater. Following the pulper is a new Bird Machine Co. Centriffler which is used to remove metal clips and large pieces of heavy material. This is followed by a 12 in. Bird Dirtec for further cleaning before going to the thickeners to raise the stock to about 3% consistency. Heavy stock

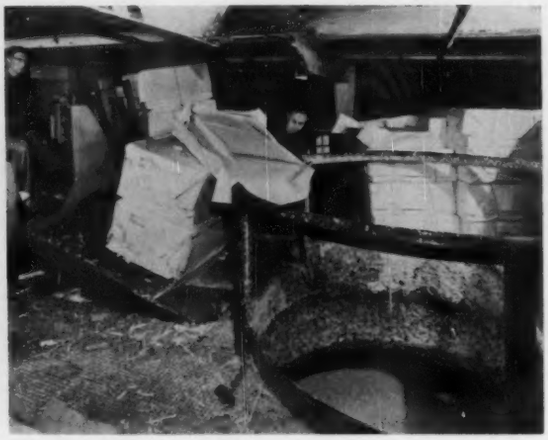
SHARTLE HYDRAPULPER . . . ". . . under water job."



BIRD DIRTEC . . . follows Bird Centriffler.



JONES DOUBLE D (front) and Bauer 442 make a team.



MORDEN SLUSH MAKER . . . "several times faster."

is then pumped through a DeZurik consistency regulator before going either to a 200 hp Bauer 442 single disc refiner or a 350 hp E. D. Jones & Sons Double D refiner. Operators say the results with these refiners are excellent in obtaining better freeness and stock characteristics.

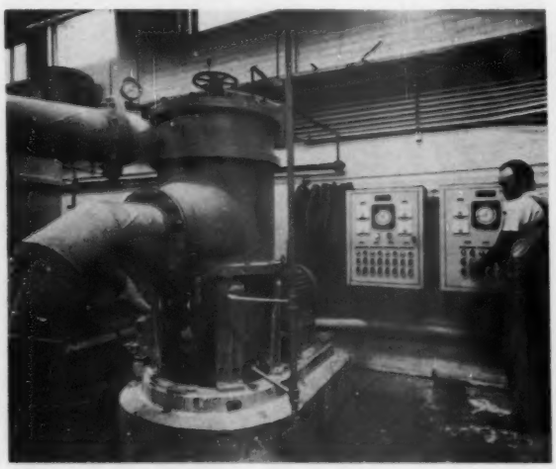
Incidentally, a four stock system is available to serve No. 2 machine, top liner, underliner, filler and backliner. This gives a maximum versatility in making changes and special grades of board.

For the liner and underliner stocks, where purchased virgin pulp and clean trim are to be used, a major new unit in the stock preparation is a 4000 lb. Morden Slush Maker. The unit is used in batch process and is several times faster than the older "Tug-Boat Annie" pulpers used before. The liner and underliner stocks from the pulper are prepared for the Morden by cycling the stock through pressure jordan.

How No. 2 Board Machine Was Rebuilt And More Detail on the Seven Formers

• No. 2 Machine at the Fountain St. mill of Michigan Carton Co. is one of 3 cylinder machines in its two mills and was first installed in 1913. About all that now remains of the old machine are the 96 dryers and the calender stacks after a virtually complete rebuild this year. It trims 120 in. and is designed for a maximum speed of 750 rpm. Here, as in stock preparation, it was quite an engineering feat to install the new Beloit Stevens Formers and auxiliary equipment in a space occupied by a 45-year-old machine.

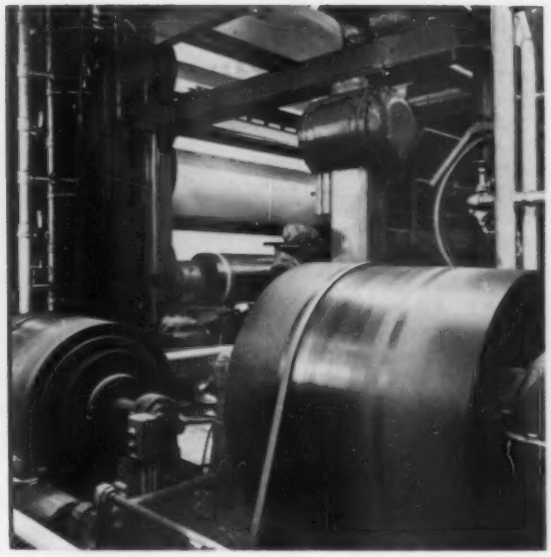
No. 1, as a PULP & PAPER editor roughly stepped it off, was just 14 feet across the aisle from No. 2. Despite this proximity, Michigan Carton engineers decided to dynamite the old foundation and clean out the No. 2 area in this manner instead of using air hammers. Three professional dynamiters were brought in and did the job in just three days. They shored up around all the machinery beforehand and No. 1 kept running without a hitch. When No.1 was rebuilt five years ago, over $6,000



SHARTLE SELECTIFIER . . . one for each Former.

CURTISS WRIGHT basis weight control . . . utilizes gamma ray.

FOXBORO moisture and steam control.



EXTREMULTUS plastic belt . . . only 1½ in. wide.

was spent on an air hammer job which took 15 days.

The seven ultra-new Formers and their auxiliary controls are the heart of the new wet end of the machine. The units are of modular construction and each Former has its own machine pit, fan pump, screen, headbox, consistency controls, pressure and vacuum controls. For cleanliness all of the machine pits were tile lined by Kalamazoo Tank and Silo Co.

How Stock is Handled . . .

One of the most interesting features of this new installation is the method of handling the stock to the individual Formers entirely by remote control. A small control panel 3 by 4 ft. called a "Beloit Custom Control" is set up on the front side of the machine. Here is the operation control for the quantity of stock, dilution of stock, fan pump, exhaust system, coucher roll loading and all that needs to be controlled by the operator after start-up.

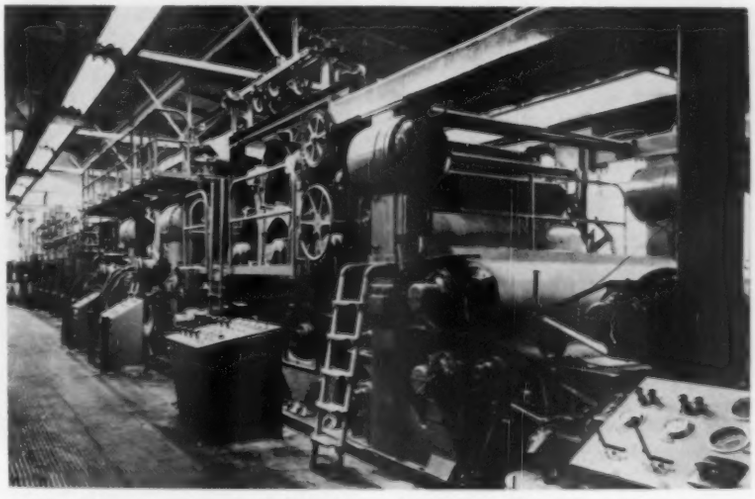
Stock is fed to the individual Formers from the main headers (liner, underliner, filler and backliner) as desired by the operator. The amount of stock from the desired header to each individual Former is regulated by a Foxboro Liquid Level recorder controller located in the outlet section in a small three compartment head box (inlet, outlet and overflow). The level control is connected to an air operated DeZurik Vee Port valve to maintain a constant level in the headbox. A DeZurik consistency regulator in the inlet section of the headbox assures uniform consistency stock going to the Formers at all times. A Foxboro recorder controller located on the central panel in the front side of the machine shows the incoming and outgoing consistency at all times.

The stock is fed by gravity through an air operated DeZurik Vee Port valve to the inlet of the fan pump. The control for this valve is located on the "Custom Control" panel. The stock goes into the fan pump at about 2% consistency where it is diluted with white water to 0.3 to 0.8% consistency as desired. Then it goes to a Shartle Selectifier screen for final screening and on to the inlet of the Former under pressure.

The volume of low consistency stock to the machine is regulated by a Saunders type valve after the Selectifier and controlled from the main control panel. Each of the seven Formers has this type of control. An interesting sidelight is that about 80,000 feet of plastic tubing was needed for the control system.

Other New Machine Features

The inlet of the Former is the equivalent of a Beloit air pressure loaded headbox complete with its distributor and rectifier rolls which bring the stock and water in a completely dispersed and uniform state to the formation zone. Formation is carried out in a mold that can be generally described as similar to a conventional cylinder mold in that it is of open construction and carries both a backing wire and a forming wire. A low vacuum can be maintained in the vat if desired. A stainless steel



DRY END of newly rebuilt No. 2 paperboard machine.

bottom lip is positioned close to the forming wire and a special curved top lip assembly covers a part of the forming wire immediately after the bottom lip. The proportioning of these parts, together with the adjustments provided, make it possible to control the relative speeds of stock flow and the forming wire.

The new press section consists of a suction drum roll with top and side rolls, two plain primary presses, one suction primary, first main press, inverse suction press, third main press followed by seven pre-dryers which lead into a felted hot press and a smoothing press. Vickery felt conditioners are used on all press felts as well as the top main felt.

In the main dryer section are 96 dryers of 42 in. diameter, in stacks of 8 dryers each. Provision was made to use 60 lbs. pressure in the last eight dryers in the machine. The machine has two calender stacks of seven and nine rolls respectively. The machine can either make rolls or cut directly into sheets off the machine.

A Babcock and Wilcox boiler of 750 lbs. pressure installed three years ago and a new 6,000 kw Elliott turbine, exhausting at 30 to 35 lbs. for processing steam are important units serving the new machine and other production facilities of Michigan Carton Co.

The No. 2 machine is driven from a new 700 hp Westinghouse line shaft unit, operating from an M.G. set which converts ac to dc. The M.G. set is an 800 hp motor driving a 500 kw generator and kw generator plus exciter, all Westinghouse.

There is an interesting use in the drive system of the new Extremultus special strength plastic belts in 1½ inch widths replacing the big 6 and 8 inch belts normally used.

Results Are Praised

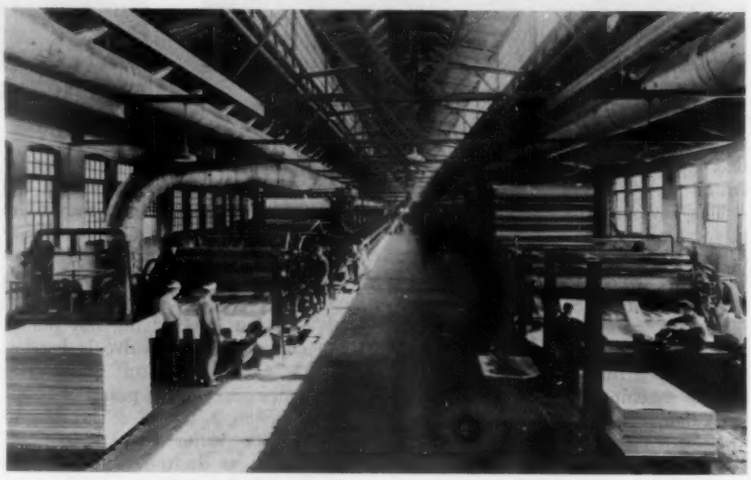
The rebuild of No. 2 machine was done in a week less than four months. It was done in two ten-hour shifts, six days a week.

First runs with the new Formers were events of more than usual excitement in a mill, naturally. In less than 12 operating hours salable paperboard was being produced. This started last March 29, and since then the machine has proven to be a success, according to Michigan Carton management and staff. Board for many uses from ice cream cartons to cereal cartons has been successfully produced.

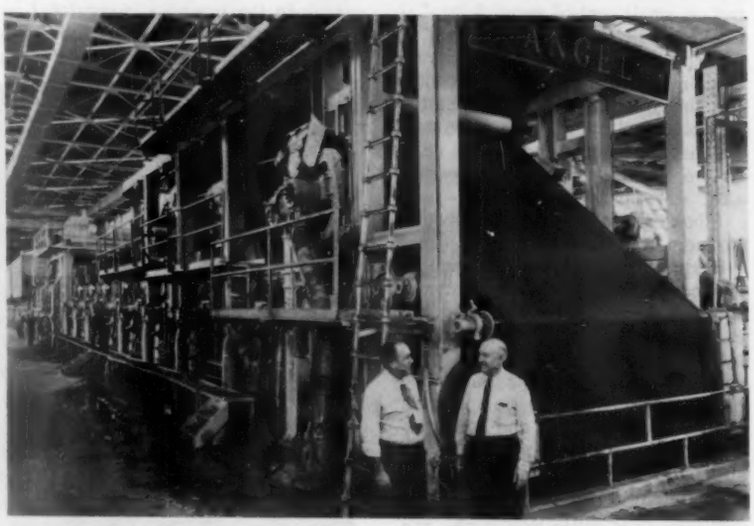
A characteristic of all the grades of board has been the extremely high degree of uniformity of caliper, weight and other physical characteristics across the machine and excellent printability for process work. No. 2 machine is now producing a wide variety of quality paperboards of all kinds from .012 in. to .040 in. to meet the rising demand for paperboard both in the open market and in Michigan Carton's own converting plant.

The Michigan Carton Co. is famed for quality of folding cartons as well as paperboard. Their converting plant boasts a new five-color Miehle letterpress, a new two-color Miehle offset press, a new 5-color Harris offset press with another large new 5-color Miehle offset press to be installed later this year.

Louis J. Philipps (left), plant engineer, and Robert Armstrong, asst. plant engineer, played important roles in rebuild of No. 2.



IN 1918 original No. 1 and No. 2 machines in Fountain St. mill looked like this. (No safety shoes here—several of papermakers are barefooted.)



IN 1948 "The Angel," longest machine in world, made history at Michigan Carton. In front of machine are Gordon Hoy (left), chemical engineer, and William J. Shaw, Angel St. mill supt.

PACKAGING STYLES CHANGE. Left, some of early packages produced by Michigan Carton, probably around 1910. Right, new ½-gal. ice cream packages made with improved quality paperboard off the newly rebuilt No. 2 cylinder machine, with its Fourdrinier-like qualities.

Kellogg (Corn Flakes Man) and W. I. Fell Founded a Pioneering Paper Industry

W. K. Kellogg, of Corn Flakes fame, was a founder of Michigan Carton Co., and he was responsible for W. I. Fell getting out of the cereal business and into the papermaking game. W. I. Fell was father of Lawrence G. Fell, now chairman of the board and treasurer of Michigan Carton. It was W. K. Kellogg's distinguished brother, Dr. John who founded the world-famous Battle Creek Kellogg Sanitarium. W. K. was managing a small plant making health foods for the sanitarium. He kept pestering his medical brother to let him start a national campaign to sell the cereals, and finally persuaded him in 1906. The rest of the cereal story is well known.

In 1907, not wanting to be dependent on outside sources for cartons, W. K. approached Mr. Fell, also in the cereal business, to buy Record Publishing & Carton Co., only carton manufacturer in Battle Creek. Record's machinery was moved to a new site. Thus Michigan Carton Co. was founded, with Mr. Kellogg as its first president. He sold his holdings to the Fells in 1921.

Pioneering by Michigan Carton

In its first decade, Supt., and later Vice Pres., Jack Byrne of Michigan Carton Co. pioneered use of lightweight wood furniture, instead of metal, to lock up cutting forms.

Michigan Carton was a converter until 1911 when it built its first paper mill, with a 40 tons per day board machine. The next year a second 40-ton machine was installed. C. W. Post, head of Postum Cereal Co., promised a market for products, and this was why papermaking was started.

By 1939, two paper machines were making 202 tons a day. As soon as World War II ended in 1945, ground was broken for "The Angel," which in 1948 boosted production to 400 tons a day, twice what it had been.

In 1953, No. 1 cylinder machine, 96 in. trim, was rebuilt, upping production to about 420 tons. Now comes the radical rebuild of No. 2, which mainly means a major upgrading of quality and increased capacity.

Sam Stevens Got "First Gleam of Idea" For New Former When He Was Student

Samuel S. Stevens told PULP & PAPER he got his first gleam of the idea for the Former when he was studying engineering at Columbia University and working in the lab of his father's mills, Stevens & Thompson Paper Co., Greenwich, N. Y., during the 1920's.

In 1949, the president of Erving asked him: "Whatever became of that idea you had to improve the Fourdrinier?" Mr. Stevens replied it was still in his head, and he was then given a go-ahead to try it. Refinements of design, based on operation, for light weight, tissue and board, have been made by Beloit Iron Works in the past few years. Changes have been based on actual operation. The newest and certainly most sensational demonstration is now taking place at Michigan Carton.

"The big thing was to get water to follow a curve," was the probably too simplified way that Mr. Stevens explained his idea in an interview with PULP & PAPER. A Beloit pressure distributor is the first element of the Former. Mixed stock and white water pass through it to the throat, where velocity of flow is brought to the optimum level for the type of sheet being run. From here contact is made with forming surface of a special cylinder mould and sheet formation is carried through in a very short space. This space is between the forming wire and a curved top surface or roof, carried in mounting adjustable parts. White water is promptly carried away from the mould.

Former adjustments and vacuum control make simple the variation of basis weight, consistency and free-

SAM STEVENS, inventor of the Stevens Former.

ness. A notable characteristic of the Former is the provision for adjusting and maintaining ratio of tensile strengths in finished sheets. Uniformity of strength and basis weight is excellent. The Former is capable of developing even better cross fiber strength than a Fourdrinier, it is said. The extension of the use of the revolutionary Former to all vat positions on a cylinder machine will now permit multiple cylinder machines to move into materially higher production ranges while retaining quality advantages.

Developments on Sitka Mill

Bond closing in New York. Engineers busy in Seattle. Equipment selected and being built for a startup in late 1959

—Seattle

● If all goes as well in the next year as it has in the recent past for Alaska's second big woodpulp industry, completion of the new Alaska Lumber & Pulp Co. mill at Sitka will beat the target date of Jan. 1, 1960 by a couple of months, more or less.

Twelve rayon customer-companies in Japan were putting up $37,000,000 and bond-closing in New York City on Aug. 21 assured the $19,000,000 being raised in the United States.

Meanwhile, here in Seattle, in three different buildings in the heart of the city, administrators, engineers and keymen who will operate the 340-tons-per-day mill, and their aides, are busy making plans. All major equipment has been ordered. Suppliers appear to be setting records in filling orders. A few are participating in financing the new mill.

Much Construction is Done

The 93% alpha cellulose which will be made by magnesia base sulfite process will be shipped to the Japanese rayon plants. Three ships per month will cross the Pacific and in September the Sitka pulp dock was being completed. A car ferry slip, where chemicals and other supplies will be delivered from U.S. via inland waters, was already in service in June to bring in machinery. Dredging of the river delta and diversion of Sawmill creek's outlet at the mill site was done between last September and February. Most of the foundations are poured and building structural steel is being erected.

A Rice Barton 168-in. Fourdriner and Minton totally enclosed vacuum dryer is one of the main units of the new mill. Following this will be the finishing system, entirely furnished by Clark-Aiken, one of the biggest projects of its kind to be done by Clark-Aiken, including cutter, layboy, conveying, etc.

Sumner Iron Works is supplying a large log hydraulic "Bellingham cradle type" barker and 153-in. chipper and other woodroom and conveying equipment. A Hansel ring barker will bark small logs, all going to the one chipper, followed by Rotex chip screens.

Chicago Bridge & Iron Co. is building six 18 ft. diameter by 56 ft. high Hortonclad stainless steel clad carbon steel shell digesters. The cladding is brazed on. All tanks will be by C.B.&I. Impco is supplying washing and bleaching equipment. There will be seven bleaching stages, one of them chlorine dioxide.

The MgO recovery system will be similar to the one at Weyerhaeuser's Cosmopolis, Wash. mill, which was described and illustrated in PULP & PAPER in the July, 1957 issue (page 38). Key units are two Babcock & Wilcox recovery units of 400 tons total capacity, exactly duplicating the Cosmopolis MgO boilers. Chicago Bridge & Iron is supplying a sextuple effect Conkey (Rosenblad-type) tubular evaporator, also duplicate of the Cosmopolis installation.

There will be two Babcock & Wilcox oil and bark burning power boilers and General Electric is supplying two 7500 kw turbogenerators and all motors and switchgear. Northwest Filter Co. is supplying a fully automatic water filtration system. A.L.&P. did not have to build its own dam, as it will buy all water from the city of Sitka, helping to finance a new city dam on a cooperative basis, which will supply the city with low cost power for the first time.

Founded by Russians

Founded by the Russian settlers over a century ago, Sitka was the Russian capital and has more relics of their occupation than any other locale in Alaska. Present population is 2,500 and the only industry to date has been fishing. It is popular among tourists. Japonski island is Mt. Edgecomb institution, where 1,800 aged and other wards of Alaska's Native Service, live and are part of the Sitka economy.

A.L.&P. has formed a housing development corporation to build some 35 homes Experienced workers for the mill are being recruited at the Seattle offices.

Tadao Sasayama is president of both A.L.&P. and the parent Tokyo company. Sakae Fukuyama is executive v.p. and Takuji Ohshima is v.p. of A.L.&P.

Cavin Built Other Mills

Executive offices in Seattle are in the American Building, 2nd and Madison, and here is also headquarters for the veteran pulp and paper mill builder, Harold D. Cavin, chief engineer of the Sitka project. He and his wife have bought a home at Hunt's Point, Lake Washington, moving here from Bellingham, Washington, where he was located for many years in association with Puget Pulp & Timber Co. and Ketchikan Pulp Co., both being mills he engineered. He started his career 30 years ago with Hardy Ferguson Co., as assistant to Justin McCarthy in building what is now the St. Regis pulp mill in Tacoma Wash. Mr. Cavin was chief engineer successively for the first unit of Soundview (now Scott) at Everett, Wash., a Tacoma expansion, the first Puget Pulp unit, Hollingsworth & Whitney Co. in Mobile, Ala., the second Puget Pulp unit, the board mill at Puget Pulp (after serving as a Commander of Seabees in World War II in Pacific islands) and Ketchikan Pulp.

Tadao Sasayama

Harold D. Cavin

MR. SASAYAMA heads Japanese parent company, Alaska Pulp Co., in Tokyo and is also president of the Alaskan company building Sitka mill. He heads group of 12 rayon companies in Japan putting up $37,000,000 of the $56,000,000. HAROLD D. CAVIN, veteran builder of some of the biggest pulp and paper mills in this country and Alaska, is busy in Seattle offices as chief engineer for the Sitka mill. JAMES A. HUTCHISON is resident engineer at Sitka for Mr. Cavin.

Offices for Engineers in Seattle

A few doors away on the 7th floor of the Olympic National Bldg. are offices of Stevenson & Rubens, consulting engineers, where a staff is working on design and engineering for the Sitka mill. Boris Rubens and Henry Pratt are the principals. Mr. Pratt, former Union Bag engineer in Savannah, who worked with Mr.

Cavin in Ketchikan and Mobile, is project engineer in direct charge of Sitka design.

James A. Hutchison is resident engineer at Sitka for Mr. Cavin. He was formerly with Mr. Cavin on the Ketchikan Pulp Co. job.

Just across the street, on the 5th floor of the Exhange Bldg., 2nd and Marion, are key staff of the Sitka mill and engineers serving directly on the A.L.&P. staff. These include Tom Stein, who will be Sitka resident mgr., an engineering graduate of Minnesota, formerly with M.&O. Paper Co. and Rayonier Inc., recently as manager at Jesup, Ga.

Others are Les Bickell, technical director, formerly with Woodfibre, B.C., and Ocean Falls, B.C., mills; George Gouker, general supt., from Rayonier's Fernandina, Fla, mill; Art Dammann, plant engineer, formerly instrument engineer at Ketchikan, and Minoru Yoshimura, engineering asst. to the exec. v.p. of A.L.&P. Co.

Also in the Exchange Bldg. is Daniel J. Doswell, industrial and public relations mgr., who was personnel mgr. for Columbia Cellulose (Celanese) at Prince Rupert, B.C. He is in charge of recuiting staff for Sitka mill.

New Truck Also Improves Inter-department Relations

"Our problem was interdepartmental competition for trucks," explains Dick Hickey, cost control supervisor for Ace Carton Corp., Chicago, Ill., "especially since our shipments were increasing daily." An electric-driven gas powered fork lift truck helped eliminate employes' idle time, improved relations between departments and brought about better housekeeping in general.

Before the new truck came on the scene, the company used a 6,000 lb. capacity platform highlift and a 4,000 lb. capacity fork lift. But shipments increased 30% in 1956 over 1955 and the materials handling equipment wasn't adequate

A walkie-type Automatic Transporter was added, too, and now handles 70% of unloading in receiving three to 15 truckload lots daily of paper box board, weighing 32,000 lbs. per truck. The Transporter's capacity is 6,000 lbs. The plant's old walkie, one of the original chain drive models, is still in use, primarily for shifting loads in the cutting department.

Forks Speed Bale Handling

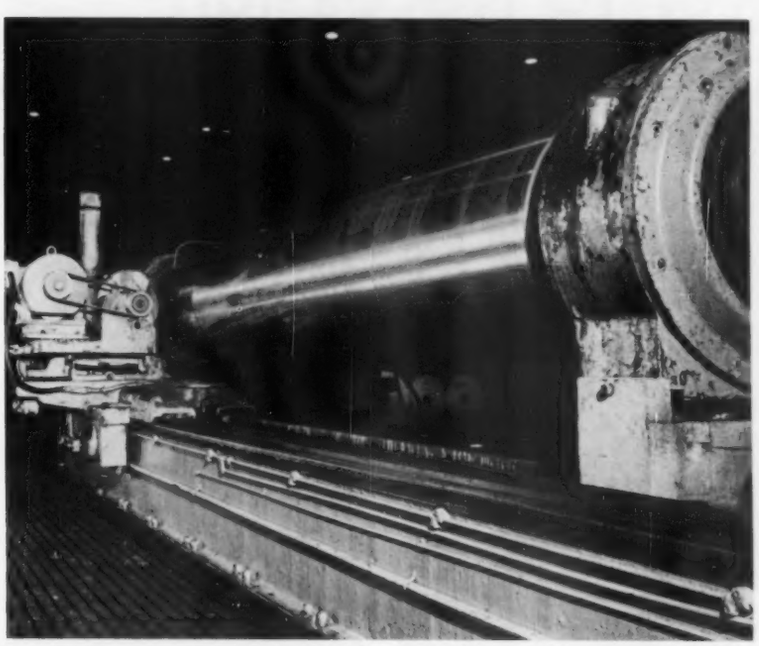
Operator of Ace Carton's new Automatic Dynamotive GLF-50 forces chiseled forks underneath 1,300 lb. load of baled waste. Loads between 16 and 24 bales in 20 to 30 minutes. Working alone he moves bales from scrap room baler to trucks at dock 50 ft. away, weighing loads as he rolls over scales enroute.

Ace's plant has 100,000 sq. ft. of floor space and its finished goods warehouse, two blocks away, has 5,000 sq. ft. Raw materials are received in the front of the plant and stored in a 6,500 sq. ft. area at the rear. The large skids are stacked two high and several deep along a single 9-ft. aisle.

Truck loading of skids and pallets is usually done by the 4,000 lb. fork lift which handles most of the shipping and finished goods. Placement in trucks sometimes is done manually, carrying packages from the truck's platform.

Scrap accumulate is baled in 1,300 lb. lots, an average of 10 during an 8-hr. shift. Bales are moved out of the plant four or five times weekly, a one-man operation.

Ace's material handling problems are pretty well in hand for the present, but Mr. Hickey is still looking for ways to keep up with the company's continued expansion program —expansion in everything but storage space.

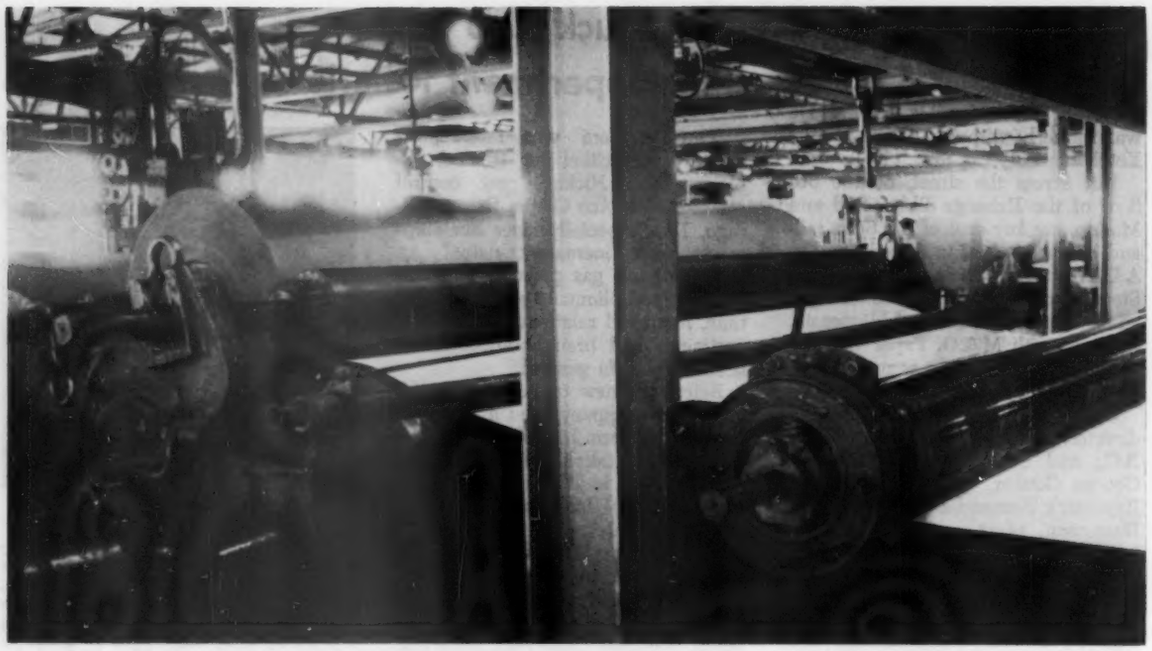


Giant Grinder Keeps Potlatch Rolls in Shape

At Potlatch Forests, Inc., Lewiston, Idaho, this new No. 5 Lobdell roll grinder was added when the Potlatch Pulp and Paper Division acquired its second machine—a 218-in. Black-Clawson Fourdrinier. The grinder is a 65,000-lb. G4V type with a 30-2 bed length, built by Lobdell-United Co. Division of United Engineering and Foundry Co.

Houghton Buys Georgia Plant

An industrial property on a five-acre plot in Carrollton, Ga., near Atlanta, has been acquired by E. F. Houghton & Co., suppliers of oils, chemicals and packings, Philadelphia, for expansion of service to Southern pulp and paper mills. Many are using Houghton De-Airex defoamers in liquid and paste form.



ON HAND AT IMPORTANT MOMENT, P&P camera catches one of first rolls of coated unbleached stock off No. 4 machine at West Monroe. THIS WAS KEY TO . . .

Olin's Answer to Recession

With its expansion halted, Louisiana Mill turns to coating unbleached board and to development of other new products

West Monroe, La.

● Two years ago, in an exclusive interview with PULP & PAPER, Olin Mathieson outlined far-reaching plans for a full-scale modernization and expansion program at its West Monroe paper mill.

Before the ink was dry on the story, the recession was with us—and with it a lot of big plans in the paper industry, Olin's included, went into the "hold" file.

But Olin's shrewd Forest Products Division brass were not standing still. Like a fisherman whose favorite stream has suddenly dried up, they began casting around for a new fishing hole. Result: a new product, and with it a whole new phase in the division's packaging concept.

Here's what happened:

1. Development of on-machine, fully-pigmented coated linerboard made from unbleached stock.

2. Simultaneous entrance by Olin into the folding box field, giving it services in cellophane, polyethylene, folding cartons, corrugated shipping containers, multiwall sacks and grocery bags.

3. Relocation of some of its corrugating facilities in the North as well as the South, for better distribution.

4. Development of Skid-Master, a new slip-resistant linerboard.

5. Installation of a six-color and five-color press.

6. A new half-million dollar research laboratory for continued experiments and "development of new products."

7. General reassignment of staff top men to fully diversify them and delegate full authority for various phases of the paper and packaging operations.

One Way to Fight Recession

A relative newcomer in the paper industry, Olin had quietly been shuffling and reshuffling its woodlands in the South. Its goal was a

HOW OLIN DIVERSIFIED its corrugating and container operations: new plants at Joliet and Cincinnati will service north; Monroe will service growing southwest and southern markets east to Tampa and Atlantic; Kansas City plant will ship as far west as Denver.

completely integrated woodlands and paper operation. With sawmills at Huttig, Ark., and Winnfield, La., a wood treating plant and flooring operation in Shreveport and its woodlands under crop rotation, it had just about carried out its aims in the forest.

Its Ecusta paper division at Pisgah Forest, too, was in the midst of an improvement program which included addition of a new and bigger machine to the nine already turning out specialties like cigaret and Bible papers.

Its kraft division, however, needed overhauling. And it was here that the business slump caught up with Olin's program. The Forest Products Division put on the brakes—but they never moved their feet off the gas. FPD General Mgr. Robert H. Evans and his keen staff began studying trends. Their objective: Find a field which would afford a chance to upgrade their kraft product without the heavy expense of complete plant modernization.

They found the answer in coating.

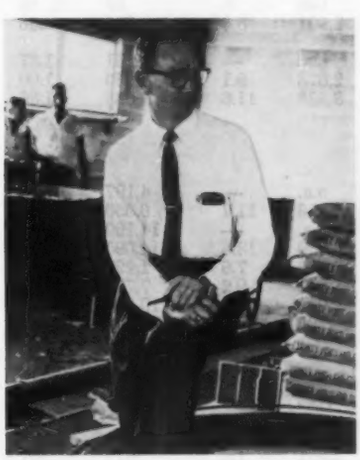
IN BRAINSTORMING SESSION, top men talk product. Facing top staff members, Vice President Robert Evans discusses potential of new coated board with Bag Mgr. Jack Peat, Container Mgr. Kent Anderson, Carton Mgr. Dick Contel and Vice Pres. Walker Hamilton, who will direct marketing.

A Fertile Field

Most significant trend at the time as far as Mr. Evans and his staff were concerned was the growing use of multi-color packaging and the folding box business; a particulrly interesting area since the two biggest potential customers of this product are the food and beverage industries, both of which stand to suffer less than most others in the face of recession.

To Dr. David C. Lea, Olin's research director at West Monroe, fell the task of developing a means by which unbleached kraft could be coated with a fully-pigmented coating on the machine, thus doing away with the costly bleaching process as well as the extra expense of coating the unbleached stock off the machine. This project was to be the "mother lode" of Forest Product's new outlook.

Within six months, the research staff reported on-machine coating of unbleached board was possible and feasible. Within a year, using a special experimental coater made by the Wheeler Roll Co. of Kalamazoo, Mich., they were at work in a pilot plant. In 18 months they were busy altering No. 4 machine at West Monroe to make coated stock.



KEY MAN IN COATING DEVELOPMENT, Dr. Dave Lea looks over progress being made in new half-million dollar research lab for packaging, particleboard and hardwood pulp developments.

IN BAG PLANT, Jack Peat (left) and Robert Evans (right) study new type bag made from stepped-end tuber which staggers tips of bag walls so they are individually joined, make stronger bag.

Actually this was more than a coating job. Changes in the machine began at the headbox and Fourdrinier, where alterations were made to give a smoother sheet, and they followed all the way through to the dry end to carry out the coating process. Changes were also made in the furnish to provide the proper base stock for the coating. The skilled Olin papermakers made the transition from pilot plant to production a smooth and rapid one.

By early summer, the 160-in. trim Pusey & Jones machine was producing a coated unbleached board which was dubbed Omnikote. Based on tests, Olin's staff claims:

1. A stronger board than coated bleached board because bleaching tends to reduce strength.
2. Comparable brightness (up to 80 G.E.)
3. Comparable printability.
4. Less ink required for printing.
5. Lower cost than bleached kraft.

Based on present commitments, the 650-ton-a-day kraft mill can produce about 70,000 tons a year of this new coated board, is in a position to alter another machine as demand for it grows.

Another new board product developed by the Olin papermakers under Bruce E. Brooks, product manager for pulp and paper, has been given the name Skid-Master. Skid-Master provides engineered slip resistance without sacrificing any of the appearance, strength or printability of regular kraft linerboard.

A New Outlook in Marketing

With a coated board to sell, Olin

now felt it had an integrated kraft operation with a full range of products: 100% kraft cartons and shipping containers; unbleached kraft board; coated board; multiwall sacks. Next it aimed at the marketing problem.

Its first move was to relocate its corrugating facilities. Olin had four corrugators at West Monroe. Freight rates and long distances made the diversification of its converting operations necessary.

As early as last spring, Olin announced construction of a new corrugating plant at Joliet, Ill., 35 miles southwest of Chicago on the Des Plaines River. This plant site has a barge landing and conveying system and direct waterway route to Monroe. Another corrugating plant has already been remodeled in Cincinnati, O. A few weeks later Olin announced purchase of a fleet of diesel truck-transports. Then it shut down one of its corrugating operations at West Monroe to complete its diversification program.

Under its present setup, with container and corrugating plants in Joliet, Cincinnati, Essexville, Mich., Kansas City, Harlingen, Tex., and West Monroe, Olin can distribute its products to major markets in the North and South and west as far as Denver. West Monroe will service areas as far east as Tampa, Fla., and Atlanta.

Entrance into the folding box field gives Olin services in every major phase of packaging. In addition it has invested $750,000 in multi-color printing presses: A new 90 ft. Roto Champlain printing press with end line cutter for long runs; a short run sheet-fed five-color Harris offset press to handle the rest of the printing jobs. These are now being installed at Monroe.

Research Will Continue

Just completed in West Monroe is a new $500,000 research lab which will be directed by Dr. Lea. Among its equipment are a 24 in. experimental paper machine, storage vats, digesters and equipment to enable the research staff to study further coating developments as well as packaging, laminating, particle board, and hardwood pulp developments.

Under the new look, Robert Evans is now vice president in charge of the Packaging Division. Reporting directly to him are these vice presidents: M. L. Herzog, Film Division; Philip C. Brownell, Ecusta Paper Corp.; M. H. (Bud) Collet, newly elected v.p. who takes over Mr. Evans' old job as manager of the Forest Products Division; Walker Hamilton, retired president of Riegel Paper Corp. and a key figure in the development of this new product, who is vice president for Marketing in the Packaging Division and T. R. Moore, formerly manager for paper operations, now divisional vice president for manufacturing in the packaging division.

Reporting directly to Mr. Collet are W. H. Brown, v.p. for Lumber Operations; Bruce E. Brooks, who takes over Mr. Moore's old job as product manager, kraft pulp and paper; Kent Anderson, product manager, containers; R. J. (Dick) Contel, formerly with Fibreboard Paper Products in San Francisco, who is product manager, cartons; and Annapolis graduate J. R. (Jack) Peat, formerly of Chase Bag Co., who is product manager, bags.

ANOTHER TOP MAN is M. H. (Bud) Collet, onetime president of Rigesa S.A., West Virginia's South American subsidiary. He has taken over Mr. Evans' former position at head of Forest Products Division.

Representative Pulp and Paper Companies Sales and Earnings—First Half 1958

	Net Income (000)	Income Bef. Taxes (000)	% of Sales	Net Income (000)	Net Per Share
MARKET PULP (Also Lumber, etc.:)					
Brown Co. (11/30)	$ 27,921	$ 1,777	5.9%	$ 43	$ .02
Puget Sound Pulp & Timber	10,570	2,752	26.0	1,323	.57
Rayonier, Inc.	52,015	2,762	5.3	1,175	.21
MacMillan & Blodel (Fiscal yr 9/30)— (2nd & 3rd Qus.)	87,480	9,463	10.8	5,128	.97
Weyerhaeuser Timber	192,094	36,449	19.0	22,539	.74
NORTHERN INTEGRATED COS.:					
Abitibi Power & Paper	62,139	9,753	15.7	4,438	1.00
Diamond Gardner	81,170	n.a.	—	3,577	.93
Eastern Corp.	11,696	n.a.	—	269	.68
Gladfelter, P. H.	11,328	2,074	18.3	912	2.46
Great Northern Paper	24,357	146	.6	62	d. 10
Hammermill Paper	23,743	1,901	8.0	980	.86
KVP (Fiscal yr 9/30)— (2nd & 3rd Qu.)	25,048	n.a.	—	1,231	1.37
Oxford Paper	29,498	2,678	9.1	1,250	1.00
Warren, S. D.	30,492	3,526	11.6	1,688	1.55
INTEGRATED—NORTH & SOUTH:					
Champion Paper & Fibre (Fiscal yr 3/31)— (4th & 1st Qu.)	83,077	n.a.	—	4,197	.89
Container Corp.	123,683	14,413	11.7	6,950	.65
Crown Zellerbach	223,374	n.a.	—	14,190	.98
International Paper	442,577	60,939	13.8	14,090	1.09
Riegel Paper	29,329	2,328	7.9	1,227	.93
St. Regis	172,359	15,943	9.2	7,773	.92
Scott Paper	141,652	22,061	15.6	10,861	1.35
Union Bag-Camp Paper	73,722	14,223	19.3	6,743	.92
NON-INTEGRATED PAPER COS.:					
American Writing Paper	7,608	648	8.5	311	1.15
Sutherland Paper	30,291	2,412	8.0	1,156	1.08
CONVERTER:					
Dennison Mfg.	17,230	1,281	7.4	676	.97

n.a.—not available
d—deficit

The sales and earnings for the First Half of 1958 were especially prepared for PULP & PAPER by Cyrus J. Lawrence & Sons, members New York Stock Exchange, from statistical services and published reports. While the figures are believed to be correct, no guaranty is given as to their accuracy.

WASTE CONTROL COUNCIL IN SESSION at Rhinelander Mill. Members are (from left) James G. Dunlap, waste control supervisor; John D. Gaffney, technical control supt.; Jesse Holderby, mgr. of by-products (who came to Rhinelander several years ago from the Sulphite Pulp Mfrs. Research Council to operate the yeast plant), and Mulford C. Baker, chief control chemist. Council meets once a month.

Big Fiber and Water Savings

are achieved by new full-scale waste control program at Rhinelander Paper Co. Fiber savings—40%. Treated water—20%

BY JOHN D. GAFFNEY
Technical Control Supt.
Rhinelander Paper Co.

● During 1953, a full scale waste control program was initiated at Rhinelander Paper Co. to augment a limited waste program which had proven to be lacking in effectiveness and coverage. This was prompted both by the desire of Rhinelander to save valuable fiber and pigment and a statewide demand from the Wisconsin State Department of Hygiene to reduce pollution.

While Rhinelander has been a leader in reducing pollution through the production of torula yeast from the sugars in spent sulfite liquor and subsequent evaporation of the yeast plant effluent to produce a salable by-product, further steps were required to reduce mill sewer losses.

To give impetus and authority to this program, a waste control council, consisting of top management, superintendents and operating foremen, was organized to promote the activities of this program and to provide liaison between departments. The functions of this council, which meets once a month, is to determine the cause of losses; recommend remedial changes; initiate engineering studies for layout changes, authorize expenditures for equipment where necessary; and determine the course of future action.

The magnitude of this program necessitated appointment of a waste control supervisor from the Plant Control Laboratory. This step was desirable to take advantage of available testing equipment, qualified personnel, and, most important, the unbiased position of the Control Laboratory.

Survey Made First

At the outset, it was necessary to make a complete survey and study of existing testing equipment, methods of sampling, points of sampling, and operating practices to determine a starting point. This study, which covered the greater part of 1954, was devoted primarily to fact-finding, installation of automatic sampling at key points in the paper and pulp mill, education of both supervisors and employes, greater coverage of sewers, and installation of equipment to reduce both water usage and fiber losses.

Prior to this program, the sampling methods consisted of a few belt and cup type samplers combined with flow recorders, weirs and flumes, and occasional hand sampling. The position and number of points available for sampling was quite complete, but the coverage of these spots was not done on a continuing basis. A daily sample was collected and combined to make

Spearheaded Savings Program

Dr. William R. Haselton, vice president-operations at Rhinelander Paper Co., has been placed in charge of all operations at Rhinelander, Wis., with the exception of sales and corporate financial matters. He is in charge of the general administration of all departments and facilities at Rhinelander.

Dr. Haselton, a native of Glens Falls, N.Y., received his b.s. degree from Rennselaer Polytechnic Institute in 1949 and his ph.d. from the Institute of Paper Chemistry in 1953. During World War II, he served three years in the U.S. Navy, including eight months in the Philippines area. He joined Rhinelander in 1953 as technical director, later becoming manager of mfg. and still later, mill manager. He was elected v.p.-operations in April, 1957.

up a weekly composite. The analysis of the aggregate sample was reported weekly, but no systemized action was taken.

During this "investigation" period, accurate fiber and pigment losses were kept for all eight paper machines, together with flow measurements on all sewers. By the end of 1954, many major changes, such as the installation of low volume Emerson and Broughton showers in place of homemade drilled showers and the additional re-use of white water in place of fresh make-up water, were well along. These operational changes resulted in a considerable saving in 1955 and 1956.

During these two years, fiber and pigment losses were reduced by approximately 5,000 lbs. a day while filtered water usage was reduced approximately 3,000,000 gal. per day. This reduction, together with a reduction in heat losses, represented an estimated dollar saving of $150,000.00.

In 1957, fiber and pigment losses from the machines continued to drop and further reduction in the use of filtered water was possible. This improvement resulted in an additional dollar saving in excess of $50,000. Since the inception of this program, daily filtered water usage has dropped approximately 6,500,000 gal. per day.

Success Due to Sampler Used

Much of the success of Rhinelander's waste control program has been the method of sampling and presentation of results to the operating foremen and paper machine crews. In order to pinpoint the sources of fiber losses, a sampler was designed and built at Rhinelander Paper Co., which collects a sample every four minutes, segregates it according to the number of shifts (4) and will obtain samples from sewers 15 ft. deep.

COLLECTING SAMPLES . . . . Laboratory technicians George Price (left) and Marvin Zettler collect sewer samples and flow charts.

This type of sampler is in use throughout the entire mill and provides an aggregate sample for each 6-hour shift. This method permits determination of whether excessive losses are due to machine breaks, order changes, grade of paper produced, or operational carelessness.

There are five main parts to this sampler: (a) timer, (b) pump and ¼ hp motor, (c) solenoid valve, (d) revolving discharge pipe, (e) divided container (4 compartments).

The timer controls the pump and solenoid valve. Every four minutes it starts the pump which runs for a period of 30 (adjustable) seconds circulating the water from and back to the sewer. Twenty seconds after the pump starts, the solenoid valve opens for a period of 3 (adjustable) seconds at which time it bleeds off a sample from the circulating line through the revolving discharge pipe into the divided container.

The revolving discharge pipe is driven by a 24-hour synchronous motor and revolves around the container once per day. The container is divided into four sections to correspond to the four shifts worked on the machines. The sampler is completely automatic in its operation and has an additional advantage of variable location; that is, it need not be located directly above the point being sampled. This is particularly advantageous for sewers located in aisles and crowded areas.

The accumulated sewer samples are collected daily at 6:00 a.m. and analyzed for fiber and pigment losses, and the flow charts are calculated to gallons per minute.

The results of these checks are reported daily to management, operating superintendents, and machine foremen, as a ready reference on the previous day's performance of each particular machine. This report covers 40 sample checks and gives a breakdown in gallons per minute and pounds of total solids loss for each paper machine and selected spots in the pulp mill.

A record of daily machine losses is also shown on a large chart located in the mill lobby. The actual fiber losses are not recorded since each machine will vary depending on the grades produced and speed of operation. The chart is graduated from 60% up to 140% and each machine's losses, calculated as a percentage based on the standard, are recorded on the board. The recorded average is accumulative and listed as a monthly average. This gives a continuing picture of machine performance and, being exposed in a prominent place, creates friendly

FILTERING SEWER SAMPLES on a battery of Buchner funnels . . .

CHECKING FLOW MEASUREMENTS.

AVERAGE DAILY WHITE WATER LOSSES
(Total Suspended Solids)
CURRENT MONTH AND ACCUMULATIVE AVERAGES

Date_____

EFFLUENT	#/1,000 GALS.			#/24 HOURS						
	CURRENT MONTH	GPH YEAR TO DATE	LAST YEAR	CURRENT MONTH	YEAR TO DATE	LAST YEAR	CURRENT MONTH	% LOSS PROD.	YEAR TO DATE	LAST YEAR
NO. 1 MACHINE										
NO. 2 MACHINE										

MONTHLY REPORT of white water losses is made on this form.

rivalry between machine crews.

A monthly report tabulating pounds of fiber losses, volume of sewer flows, and percentage loss based on production compares current performance with the average for the last fiscal year.

Contest Stimulates Control

As a further stimulus, a continuing contest is being conducted between machines based on the largest percentage decrease in losses based on a standard. The contest is based on the average percentage performance of three months of the current year selected in a "blind draw" on each paper machine.

The machine crew with the largest number of months having losses below their standard has the best chance of drawing three months showing improved efficiency. An award is given to the machine crew showing the highest percentage of improvement. This form of contest has been a successful means of educating the machine operators to watch for and be conscious of losses and to suggest methods of improved operation.

This continual search for ways and means of reducing fiber losses and water uses has resulted in considerable equipment changes and modification of operating techniques. Most of the changes were made along the following lines:

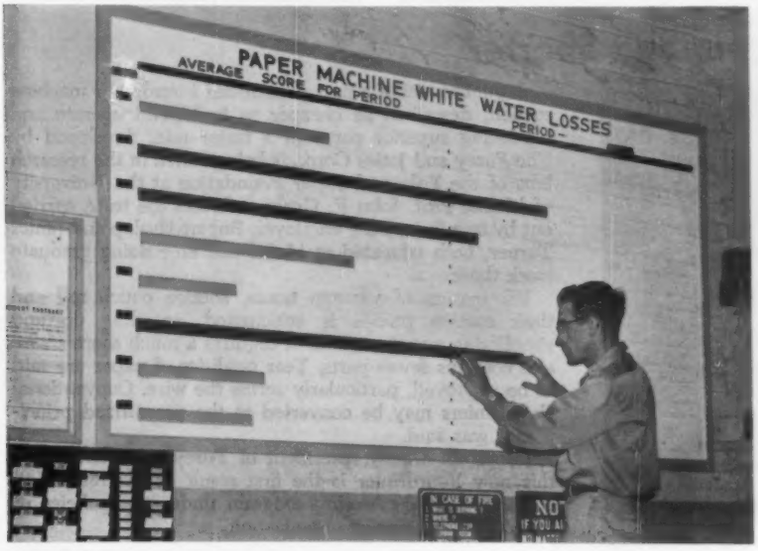
Low Volume Showers

Prior to initiation of the waste control program, most machines were operating with home-made drilled wire cleaning and "knock-off" showers. These used as much as 425 gpm. The replacement of the drilled wire cleaning showers with Broughton fresh water oscillating showers has reduced this flow to 100 gpm.

The drilled showers are still kept as knock-off showers but are equipped with automatic switches which turn on the water only when the sheet breaks at the couch. These "knock-off" showers are automatically controlled by a solenoid and a mercury vacuum switch connected to a vacuum press roll. A predetermined decrease of press roll vacuum, caused by a web break, automatically actuates the "knock-off" shower.

CHECKING BIRD SAVEALL . . . periodic checks on efficiency of the savealls

ADJUSTING FLOW MEASUREMENTS of chemicals to a Savalla flotation save-all.



RECORDING MACHINE LOSSES on a display board located in mill lobby.

Three of the machines are equipped with low volume Emerson Fan showers which are cross-piped to use either fresh water or save-all effluent water. These are used primarily as wire roll cleaning showers; however, four of the machines have this type of shower for wire cleaning utilizing fresh water.

One low volume Broughton or Emerson shower reduces water consumption by approximately 4¾-5¼ million gal. a month. This water saving represents a dollar saving of approximately $5,000 a year in filtration and heat costs. There are additional savings through decreased power consumption for pumping, and stock savings due to reduced flow and less load on save-alls.

Since a large part of the save-all

input comes from the couch pit, a prolonged web break at the couch roll will quickly overflow the save-all resulting in a considerable loss of fiber and filler. Where a deep couch pit is available, this condition can be eliminated by operating the couch pit at a very low level by continuously pumping the "stock" from the couch pit to the save-all. The pit then acts as a reservoir during "breaks" and spreads the load to the save-all over an extended period of time.

As part of the control program, periodic checks are made on the operation of the save-alls, and a continual inspection for leaking deckle straps, wire holes, open valves, and chemical flows to the flotation-type save-alls has resulted in reducing the solids content of the effluent to less than 0.5 lbs. per 1,000 gals., making the water suitable for re-use as shower water. Both visual checks and routine analysis of the effluent, which are part of the inspection procedure, serve as a check on the attentiveness and alertness of the machine operator; particularly during periods of overload.

Each of the machine tour foremen are provided with a list of locations on the save-all which he must check periodically to make sure that the save-all is operating efficiently. This check list, containing the time he made the inspection and whether any defects were found, is then submitted to the Paper Mill Superintendent at the end of his shift.

Re-Use of White Water

Wherever possible, white water has been substituted for fresh water in such places as machine roll showers, save-all showers, stock dilution at consistency regulators, beaters, and pumps.

In addition, on some machines excess seal-box water is returned to the save-all through a pump which output is controlled by a proportional level control in the seal box. During periods of peak operation (save-all overload), an electrode-type level control, located at the save-all input, shuts off the pump preventing further overload. When the peak operation has passed, the electrode level control restarts the pump.

Reuse of Bauer-Cleaner Rejects

Three of the paper machines are equipped with Bauer-Cleaners ahead of the headbox. Combined, they reject 1,000 to 2,000 lbs. of coarse fiber and 144,000 gal. of water per 24 hours. These rejects are now being reused to wash down the knots from the knotter screens and returned to the screenings tank for eventual conversion to "lap stock" for sale.

Rhinelander's present and future program is a continuing one of routine analysis, reporting and education. As new equipment is developed or found adaptable to the problems, it is considered for use in the continuing battle to reduce losses and stream pollution.

This program, with forceful management direction, employe cooperation and understanding, plus the ingenuity of many, has paid off in a 40% reduction of total solids lost and a treated fresh water reduction of 20%. The money spent on the program has been returned many times in fiber savings alone.

First Jefferson Sulphur From New Plant

Jefferson Lake Sulphur Co. of Canada made its first shipment of sulphur to British Columbia mills by railroad direct from the Peace River country recently.

Shipment was made from the newly completed $2,250,000 plant at Taylor, B.C., which has a capacity of 425 tons daily, over the Pacific Great Eastern Railway, which was extended north to Fort St. John this summer.

Buyers of the first sulphur from the Taylor plant were MacMillan & Bloedel at Harmac, Canadian Forest Products at Port Mellon and B.C. Forest Products at Crofton. Most of the B.C. mills have been obtaining their supplies in the past from the Gulf of Mexico.

Harold W. Manley, vice president of Jefferson Lake Sulphur Co., was in Vancouver, B.C., recently, discussing plans for construction of a terminal which could be used for shipping Peace River sulphur to mills in Alaska, Washington and Oregon, as well as to Australia and the Far East.

Norgren Reduces Prices On Oil-Fog Lubricators

C. A. Norgren Co., Englewood, Colo., has reduced 14 models of its Norgren Oil-Fog Lubricators. Savings to purchasers range from $1.00 to $1.50 per unit, equivalent to an approximate 9% price cut.

The reduction covers Oil-Fog Lubricators having ⅓ pint or ½ pint transparent or metal oil bowls in pipe sizes of ¼, ⅜, ½, ¾ and 1 in. All combination units including these lubricators also reflect the reduction.

Fourdrinier Made Simpler and Shorter

Robert Hyslop (left) and James Turner test new Fourdrinier.

A pilot model of a new pressurized Fourdrinier machine section, described as cheaper to build and operate and producing superior paper at a faster rate, developed by The Pusey and Jones Corp., is being tested in the research labs of the Pulp and Paper Foundation at the University of Maine. Prof. John F. Gorham directs the tests, carried out by two Puseyjones employes, Robert Hyslop and James Turner, both educated at Maine and now doing graduate work there.

Elimination of vacuum boxes, suction couch roll and their suction pumps is anticipated, speeding up and simplifying water removel. It requires a much shorter wire and contains fewer parts. Tear qualities of paper are said to be improved, particularly across the wire. Conventional Fourdriniers may be converted to the pressurized principle, it was said.

Joseph B. Ulicny, president of Pusey and Jones, says this new Fourdrinier is the first result of the intensified research and engineering program under the policies of the new management organization.

Strathmore Introduces New Paper; Offices Centralized; Warehouse Improved

Modifications have been made to one of the Strathmore Paper Co., West Springfield, Mass., mill's special cylinder machines which have enabled Strathmore to produce new Duplex items as an addition to its popular Strathmore Cover line. This duplex cover, with one side in any one of six attractive colors and the reverse side neutral white, is produced as a single sheet on the machine, rather than being pasted as might be imagined. Because of this, the duplex cover items possess unusual strength and folding qualities and have the ability to absorb the punishment required of a cover paper.

Central Offices . . .

Not only has the machinery at the different Strathmore mills been continually improved, but during the past year new offices were constructed at the main West Springfield plant. This is a part of the master plan to concentrate all offices in one central location for more efficient operation and this program will continue for the next several years until completed.

Some time ago, Strathmore opened a central warehouse in Westfield, Mass., with the express purpose of consolidating shipments from Strathmore's four mills to franchised paper merchants throughout the country. The warehouse is already serviced effectively by truck, and a new spur track has been laid to give direct access to rail facilities. As the warehouse is located only a few miles from an airline terminal, Strathmore will now be efficiently serviced by the three major means of transportation.

Together with the research and technical work being done for the Strathmore Paper Co. at the Mellon Institute of Industrial Research under Dr. Paul Davidson, plus the quality control work of the laboratories located in each of Strathmore's four mills, the company's new Research Laboratory at West Springfield, Mass., provides the company with topnotch technical program in the fine paper field.

Under the guidance of P. P. Gooding, technical director of Strathmore, and James C. Gallatin, chief chemist, the Research Laboratory is staffed by five graduate chemists and two laboratory technicians. This number will increase as time goes on and capable new personnel are available.

Objectives . . .

Principally, the new laboratory work will be directed toward process improvement and new product research, but a certain amount of routine paper testing will be continued. An important adjunct of the laboratory program is service work or advice for Strathmore customers. For instance, a Strathmore merchant in Chicago may write in to inquire how a given paper will stand up under certain printing conditions. The answer can often be provided quickly and beneficially for all parties concerned.

Located in the Mittineague section of West Springfield, Mass., close to the main offices and one of Strathmore's four mills, the laboratory building was at one time the West Springfield postoffice. Completely remodeled, the building is of modern construction.

Included is a constant humidity room, for testing instruments and research work, an instrument room, a wet lab, and a general laboratory. Two offices, a reception, library and conference room complete the facilities on the main floor.

Cowan Swartz Amerman Skinner

Talking Over New Stretchable Paper

First commercial unit for making Kraftsman Clupak, new West Virginia Pulp and Paper Co.-Cluett, Peabody stretchable bag and wrapping paper is at West Virginia's new $25,000,000 plant at Charleston, S.C., with its 240 in., 2600 fpm Beloit Fourdrinier. Special unit is in dryer section. Consists of heated, polished pressure roll and 1 in. thick rubber blanket. As sheet enters nip, it is compressed with blanket and expanded. Talking over new process at a recent Beloit, Wis., get-together are JOHN D. (JACK) COWAN, exec. vice pres. (prod.), West Virginia P and P; CARL H. SWARTZ, sales engineer, Beloit Iron Works; G. E. AMERMAN, Clupak Inc. exec., and E. STERLING SKINNER, chief engineer, Beloit Iron Works.

PORT ALBERNI MILL of MacMillan & Bloedel, on Vancouver Island, B.C.

In 4 Years, Up 840 Tons

Highlights of $83,000,000 program at Port Alberni:

1. Woodmill—Bigger and Better
2. Groundwood—560 Tons a Day
3. Kraft Mill—Recovery—Power
4. Bleach Plant—Includes ClO_2
5. Newsprint—2 Machines in Year
6. Specialties—3 Stock Sources

By LOUIS H. BLACKERBY
Western Editor, PULP & PAPER

Port Alberni, B.C.

● A four-year, $83 million expansion program makes this mill one of West Coast's large producers of pulp, paper, and paperboard. It's the plant of MacMillan & Bloedel Ltd's. Port Alberni Pulp & Paper Div., located on Vancouver Island at Port Alberni, B.C.

Since 1947, when it entered the unbleached market kraft pulp field with a 165-ton/day machine, successive expansions have brought daily capacity up to approximately 1,100 tons.

The MacMillan & Bloedel organization came into being in 1952 with the merging of two of the leading lumber-plywood-timber firms in Canada, H. R. MacMillan Export Co. and Bloedel, Stewart & Welch, each of which operated one pulp mill at that time. BS&W had the Port Alberni operation, the MacMillan firm a 250-ton unbleached kraft pulp mill at Nanaimo.

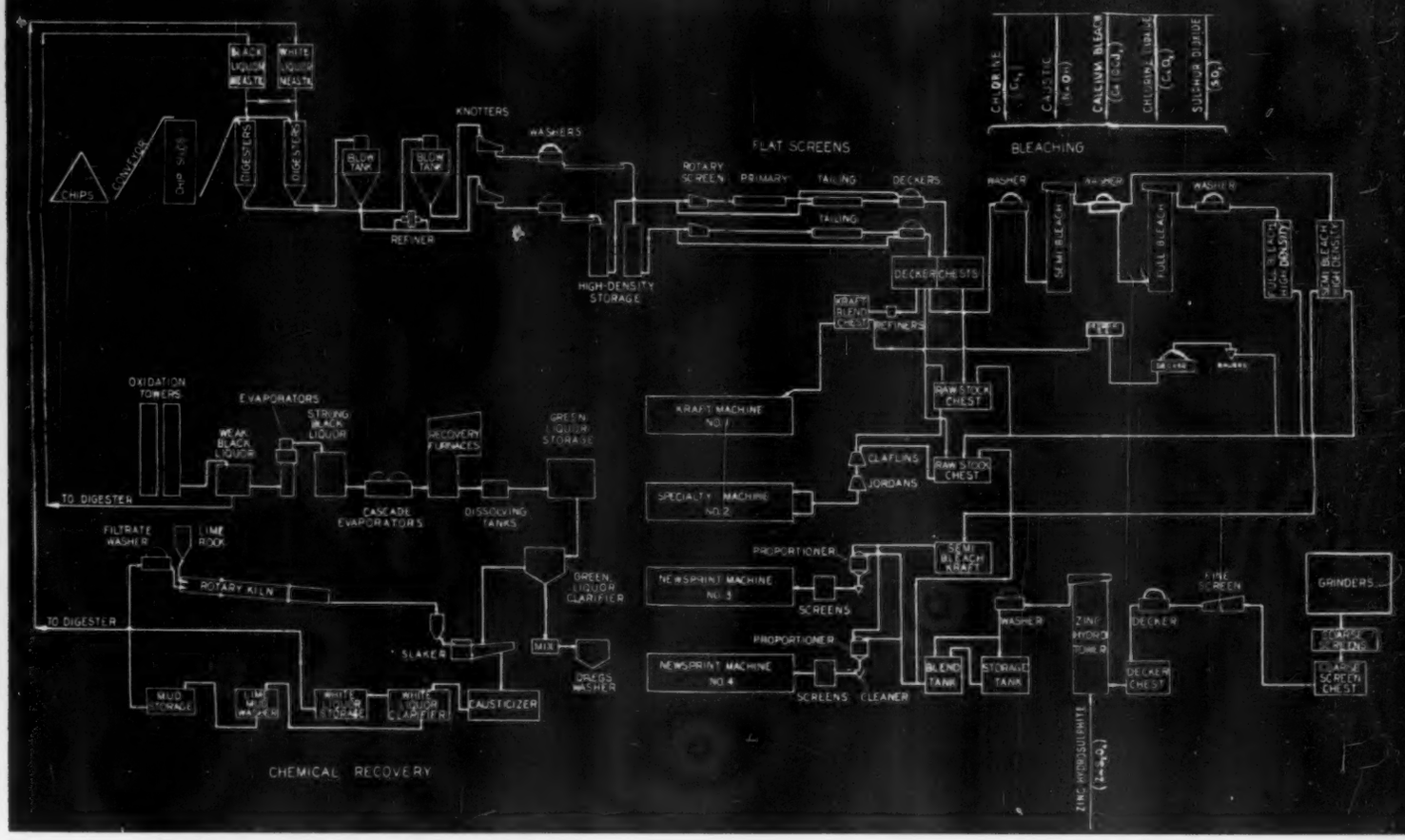
The amalgamated firm has since become one of the world's largest integrated forest products manufacturing organizations. Production for the last reported 12-month period (ending Sept. 30, 1957):

Logs–million bd. ft.	531
Lumber–million bd. ft.	525
Plywood–million sq. ft. (⅜-in. basis)	279
Shingles–thousand squares	361
Sulfate pulp–short tons	332,549
Mono-Dors–units	267,108

Installed too recently to be significantly reflected in these data are three new paper machines. New kraft and groundwood bleaching facilities also have been completed at Alberni as well as a new woodmill, groundwood mill and added kraft pulp capacity.

Three Machines in a Year

A kraft paper and board machine (No. 2) came into production in March. No. 3 machine started up in Aug. 1957 and No. 4 in July 1958, both making newsprint. These ma-



PROCESS FLOW AT PORT ALBERNI MILL

chines were the first for this company to make paper and paperboard. They have boosted Alberni plant capacity into the 1,100-ton-per-day magnitude. The company's Harmac Pulp Div., on the opposite side of the island at Nanaimo, now has capacity for producing 700 tons of high grade bleached and semi-bleached kraft pulp per day.

Over 50 years ago a paper mill was built on a site near the present Port Alberni plant. It operated slightly more than a year before being dismantled in 1896. Failure was attributed to insufficient raw material, although it was surrounded by hundreds of square miles of virgin forest. That mill was built to make paper from rags and rope, which were in short supply. Locally grown bracken fern was tried as a last resort but quality of the paper was poor.

Original unit of the present Port Alberni mill pioneered in Canada in producing kraft pulp from sawmill and logging salvage wood. It demonstrated the practicality of such a program.

Wood wastes for the company's pulp and paper operations are supplied from three of its operations at Vancouver, Chemainus and Alberni, each with sawmills and two with plywood plants. Total log consumption in the Alberni Valley runs 350 million bd. ft. per year, the pulp mill using 200 million ft. of mill wastes and salvage logs.

Extensive Utilization Program

During the 10-year period in which the Alberni mill has been making pulp, daily production on the original machine climbed from its original 165 tons to 250 tons capacity. To this has been added No. 2 machine, of 180-ton capacity, for making bleached and unbleached kraft papers and board ranging from 25 to 300 lb. basis weight, and two newsprint machines which together have a maximum rated capacity of 660 tons/day.

This increase in machine capacity, besides necessitating expanding kraft pulping facilities all along the line, also included installing modern groundwood mill of 560-ton (air dry) capacity, groundwood and kraft bleach plants, new woodmill, and major expansion of utilities.

H. A. Simons, Ltd. served as consulting engineers and project supervisors in this extensive expansion program; Dominion Construction, general contractors.

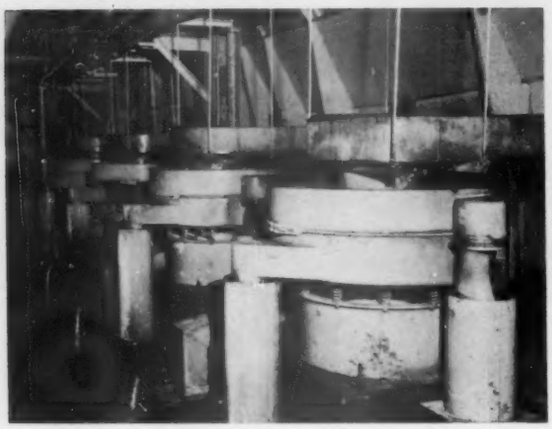
Kelly Petrie

Forstrom Loyd

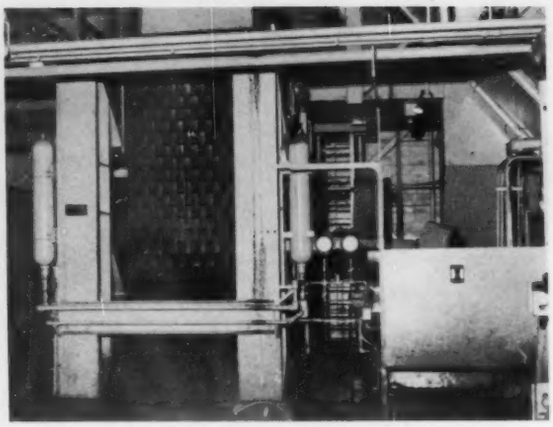
HEADING MacMILLAN & BLOEDEL'S ALBERNI pulp and paper operations are Asst. Mgr. H. A. Kelly, formerly of Bowaters Newfoundland Pulp & Paper, who joined M&B as paper mill supt. with start-up of No. 2 machine; Mgr. James Petrie, in charge of division since its 1947 opening; S. W. Forstrom, supt. of power and engineering, formerly plant engineer; and Don B. Loyd, supt. of technical services for Alberni division.

PORT ALBERNI

1. Woodmill – Bigger and Better



CLEANING hydraulic barker effluent with five Sweco 48-in. dia. vibratory screens.



DEWATERING hogged woodroom residues with Fibre Making Processes chain-type press (left).

• Port Alberni plant's No. 1 woodmill, containing slab barker and chipper, was supplemented by a larger No. 2 woodmill of capacity to convert logs into clean chips for the kraft mill and into blocks for the groundwood mill at the rate of 35,000 bd. ft. per hour.

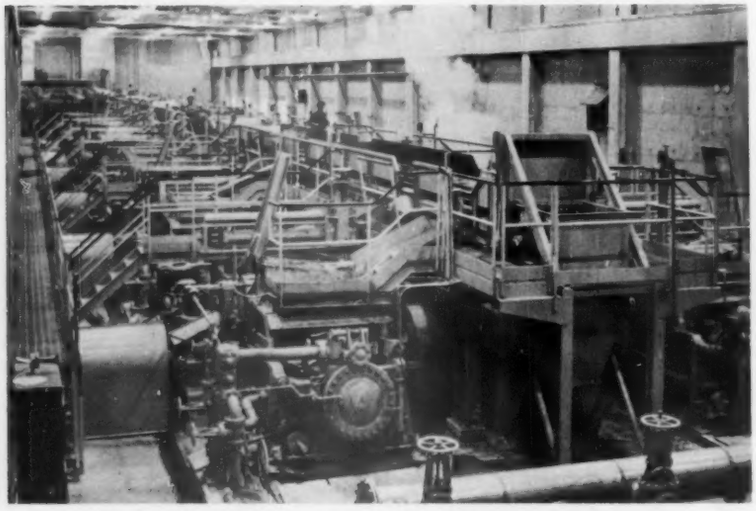
The new woodmill is equipped with Canadian Sumner equipment consisting of a Bellingham cradle type hydraulic barker, band headrig, a 550 fpm riderless carriage and 145-in. whole-log chipper directly driven by a 1500 hp 227 rpm, 2200 volt General Electric motor. The resultant chips, used without screening, are belt transported to a surge bin and from there to any one of seven storage silos.

Blocks prepared in No. 2 woodmill for the grinders are cut to 4-ft. length by a Letson & Burpee slasher deck and transported to the groundwood mill via a 1600-ft. flume which holds sufficient blocks to sustain maximum production for six hours.

Bark, sawdust and other No. 2 woodmill refuse are processed into hog fuel by a 56-in. hog. The resultant hog fuel is dewatered to approximately 45% by a Fibre Making Processes chain-type press (built by Horton Steel Works, Ltd.) to decrease weight and increase combustibility before delivery to the boiler plant or to storage.

Fibrous material and other foreign matter are removed from the hydraulic barker effluent by a battery of 45 in. diameter 105-mesh Sweco (Southwestern Engineering) vibrating screens and the cleaned water is sewered.

2. Groundwood – 560 Tons a Day



EIGHT IN-LINE PAIRS of Koehring-Waterous 2-pocket grinders.

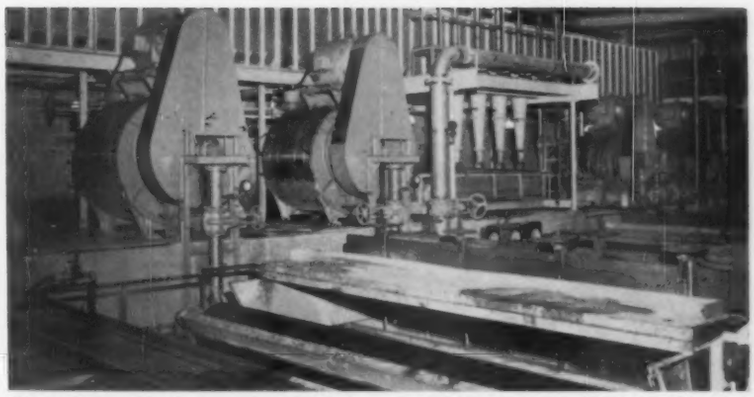
• The sparkling new grinder room at Port Alberni is a brightly lighted production section extensively equipped with gleaming processing equipment. It fills an area comparable to a large machine room. Here are 16 Koehring Waterous (Northern) 2-pocket grinders for converting the 4-ft. blocks into groundwood. These units are mounted in pairs, each pair shaft driven by a 5,500 hp General Electric synchronous motor. All eight motors, with control gear, are located in a separate room paralleling the grinder room.

Six of the grinder pairs were installed with start-up of No. 3 machine; two more were added for No. 4. Arrangements have also been made for installing a ninth grinder pair if and when needed.

Coarse screening of groundwood stock is carried out by four Pascal

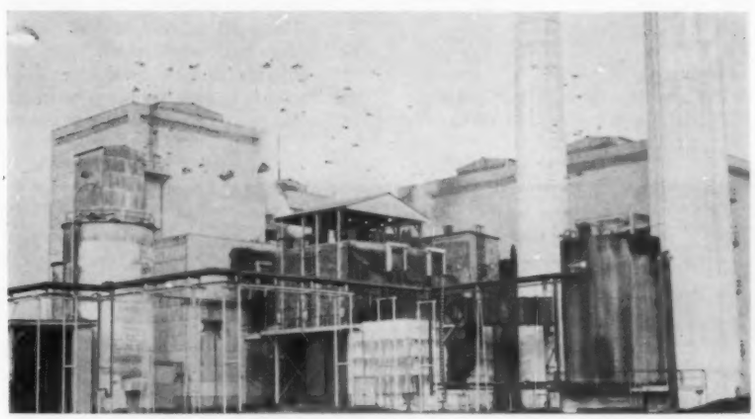
bullscreens ahead of a recycling type screening system in which secondary accepts feed to the primary screens. This system includes nine Cowan round screens—seven Mark A primaries and two Mark E secondaries—followed by 10 Sherbrooke deckers which thicken the stock for delivery to a zinc-hydro tower for bleaching groundwood. Overflowing from this tower following 45-min. retention, the brightened groundwood stock is two-stage washed by 9¼ by 18-ft. Oliver washers and subsequently stored at 4% for machine use.

The bullscreen rejects pass through a Jeffrey hammermill, two 40-in. Bauer disc refiners and routed via Bauer cleaners to the secondary screens.



IN SCREEN ROOM, Cowan round screens (Mark A primaries, left, Mark E secondaries, far right) and Bauer cleaners ahead of Sherbrooke deckers, foreground.

3. Kraft Mill – Recovery – Power



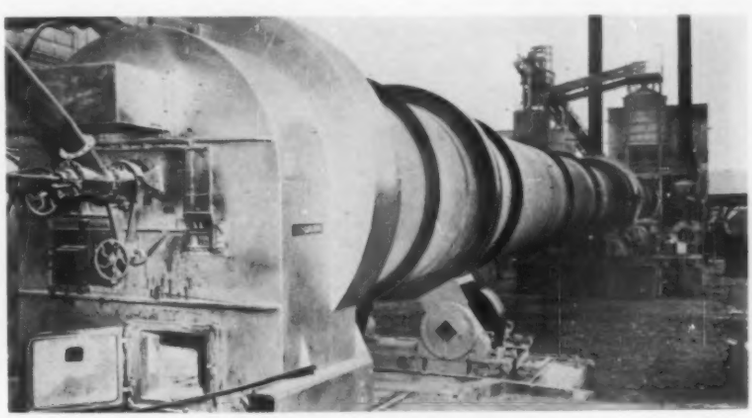
ADDITIONS FOR POWER (l to r), new C.E. recovery boiler building, Koppers precipitator, and new steam plant building.

• Prime installations in the kraft end during this three-year expansion project include two 6,050 cu. ft. digesters (making a total of six); a second blow tank, enlarged and modernized; washing-screening section; a 4-stage bleach plant and three additional oxidation towers; doubling of lime reburning and kraft liquor-making facilities; expansion of steam supply and recovery capacity; and No. 2 kraft paperboard machine.

Previous to this expansion the plant steam was provided by a Combustion Engineering recovery unit, of 556,000 lbs. solids/24 hr. capacity, fed by a sextuple effect evaporator; and one of the Alberni sawmills which provided auxiliary steam. Specifications of a new 6-feed Combustion Engineering recovery boiler are 1,025,000 lbs. solids/24 hr. capacity, 187,000 lbs. /hr. steam at 625 psi, 750°F., with CE cascade evaporator. A Lundberg-Ahlen sextuple exaporator was installed. The older recovery boiler was rebuilt for 625 psi, 750°F. steam. Besides, a Koppers precipitator of 90,000 cfm capacity at 96% efficiency was installed and a fourth cell added to the existing Cottrell precipitator.

The steam supply was further increased to meet enlarged use demands by a new steam plant of two Combustion Engineering boilers, each rated at 300,000 lbs/hr. on oil, 220,000 lbs/hr. on hog fuel, at 600 psi and 750°F. They both have Diamond IK automatic soot blowers. An 8 by 200 ft. Allis-Chalmers lime kiln and Dorr-Oliver causticizing additions were also made.

Expansion-modernization of the kraft screen room included replacing flat screens with two primary and one secondary Cowan round screens on the pulp side and installing two Cowans in the new side. Washing capacity was more than doubled by installing three 9¼ by 16 ft. Oliver washers. Three Jonsson knotters and three Sherbrooke deckers were added.



ALSO ADDED were Allis-Chalmers 8x200-ft. lime kiln with A-C Peabody scrubber; new Dorr-Oliver mud filter building in background.

PORT ALBERNI

4. Bleach Plant Includes ClO_2

CONCENTRATED HANDLING-STORAGE AREA for process chemicals, with pulp mill in background. Unloading and storage for caustic soda, sulfuric acid, sodium chlorate, liquid sulfur dioxide at left; for liquid chlorine at right. Pulp chlorination tower, far left.

• The recently installed kraft bleach plant is a Kamyr-design 4-stage unit.

Bleach liquor making includes the following:

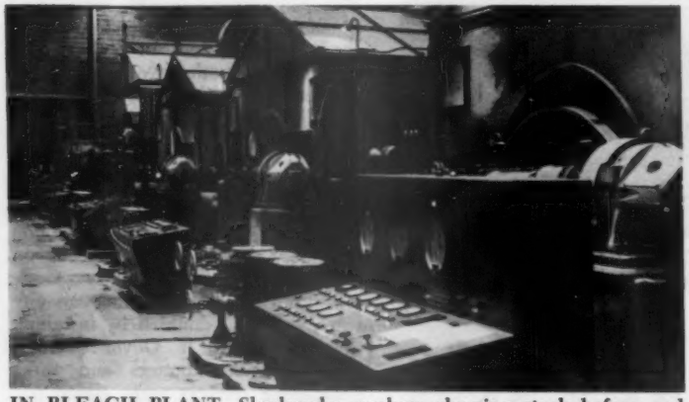
1. Calcium hypochlorite system, with continuous hypo plant, of Hooker design, consisting of chlorine injection, retention and classification in P-50 Dorrlones—from which liquor passes through Redox sampling chamber via which chlorine is automatically controlled.

2. Caustic preparation—consisting of dilution control of 50% caustic via density measurement.

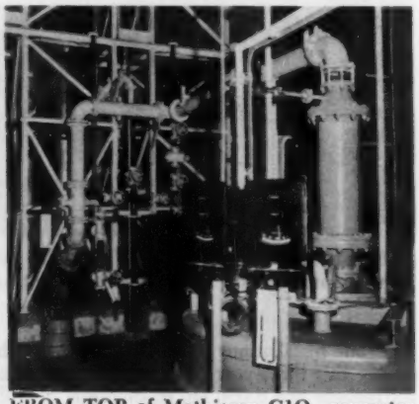
3. Chlorine dioxide—Olin-Mathieson design, utilizing sodium chlorate, sulfuric acid and sulfur dioxide.

Brown stock from the stock chests is converted to low consistency by a DeZurik regulator and then goes to the first of five 8 by 14-ft. Sherbrooke washers. Next it goes to the chlorine tower for 60-min. retention, washed again; to caustic tower for 90-min. retention, washed, and then to hypo tower for 180-min. retention. Stock to be utilized as newsprint make-up gets a final wash at this stage and is then diverted to semi-bleach high-density storage.

High-bleach pulps for No. 1 or No. 2 machines get additional bleaching. Following the fourth wash they go to a chlorine dioxide tower for 300-min. retention and are then washed and consigned to full-bleach storage.



IN BLEACH PLANT, Sherbrooke washers cleaning stock before and after bleach stage (r to l): pre-chlorination, chlorination, caustic extraction, calcium hypochlorite, chlorine dioxide.



FROM TOP of Mathieson ClO_2 generator (foreground) scrubbed gas flows by transfer line to packed absorption towers (rear) where absorbed by water.

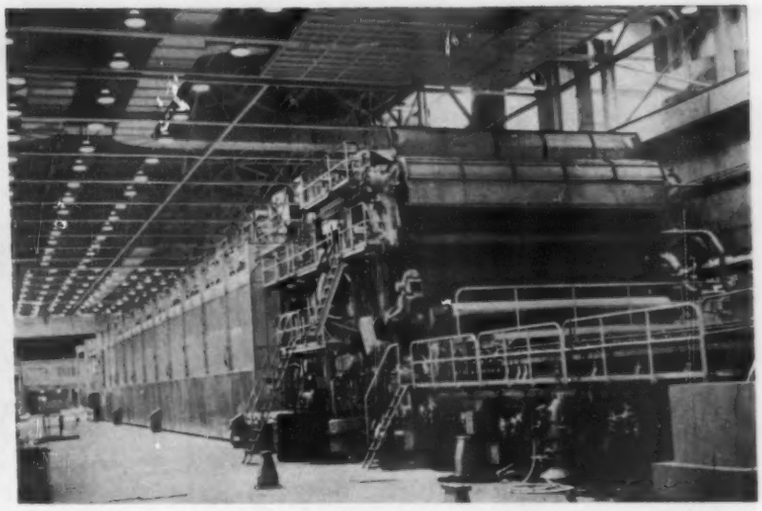
5. Newsprint – 2 Machines in Year

• Both news machines at Port Alberni—No. 3, which went into production a year ago, and No. 4, which recently started up—are by Beloit Iron Works. Except that No. 3 trims 264 in., has maximum 2500 fpm design speed and 335-ton/day capacity as compared to 252 in., maximum 3000 fpm and 325-ton/day for No. 4, these machines are practically alike. Each has Beloit removable Fourdrinier, pressurized headbox, inclined press with felt pickup followed by conventional press, 55 paper dryers, 11 felt dryers; Beloit sectional line-shaft drive with Link-Belt PIV variable speed units; General Electric turbine driving shaft; Harland MG electric helper drive, Midwest-Fulton drainage, Beloit winder, Dominion Engineering rewinder, Ross-Hooper machine hood, process air and ventillation; Roots-Connersville vacuum Waterous nBionf eh- RF ET xz pumps, Bingham primary and secondary fans pumps; and Koehring-Waterous broke beater.

Furnish for each of these machines consists of approximately 20% semi-bleached kraft pulp refined by E. D. Jones jordan, and 80% groundwood to produce newsprint of 56 brightness.

Stocks from high-density storage and broke storage (the broke having been refined by E. D. Jones & Sons jordan and thickened by Sherbrooke deckers) are brought to proper consistency via DeZurik regulators, combined through Cowan proportioners, and delivered by a pressure fan pump to a Bauer cleaner system, then fan-pumped to a group of eight Black-Clawson Selectifier screens for final cleaning immediately ahead of the headbox.

A Lamb-Grays Harbor finishing-sorting-handling system, receiving market size newsprint rolls from the rewinder, wraps and transports them to storage-shipping area via Detecto scales at which point each is weight-marked.



NEWSPRINT PRODUCTION for MacMillan & Bloedel came with this new 276-in. Beloit machine. A similar machine (just out of photo at left) started up this summer.

6. Specialties – 3 Stock Sources

• No. 2 is a 184-in. John Inglis machine with Rapi-Drape Fourdrinier and Beloit design headbox made by Dominion Engineering. It has 52 paper dryers, 6 felt dryers, 175 to 1750 fpm design speed range and carries a 184-in. by 120-ft. wire.

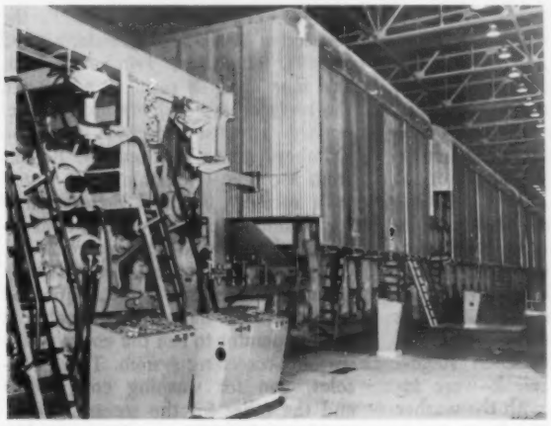
Machine components include two presses, hot press, breaker stack, size press and two calender stacks with inter-calender dryers; Harland MG sectional drive powered by 2250 hp G.E. turbine; Flakt hood and economizers, Inglis winder and Beloit rewinder.

Stock for the new No. 2 machine at Port Alberni, built to make kraft paper and board, can be drawn from any of three sources—brown stock decker chest, semi-bleach and full-bleach high-density storage chests. The flow is to one of two stock chests form which flow is through a DeZurik consistency regulator to Claflin refiners (three No. 3, and one No. 2) enroute to machine chest.

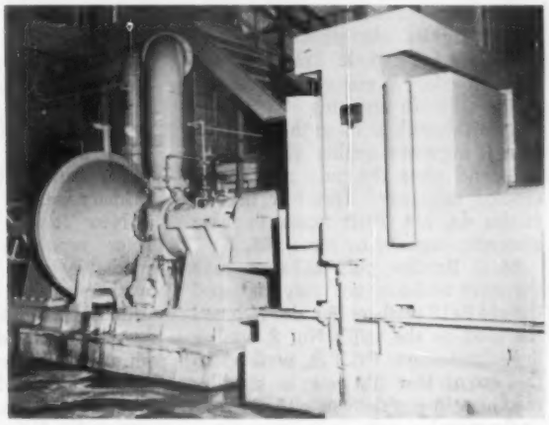
The stock next goes to five Jones Majestic jordans for refining and then routed to primary stuff box. From here, stock passes through a Bauer cleaner system. The accepts are delivered by the primary Allis-Chalmers fan pump, via a Beloit Streamflow valve, to the primary pressure headbox. When running liner, stock for just the top sheet is Bauer-cleaned and the accepts delivered by fan pump to the secondary headbox.

This specialty machine has been chiefly confined to producting unbleached kraft papers since its start-up. It can just as well produce bleached or semi-bleached, both paper and board.

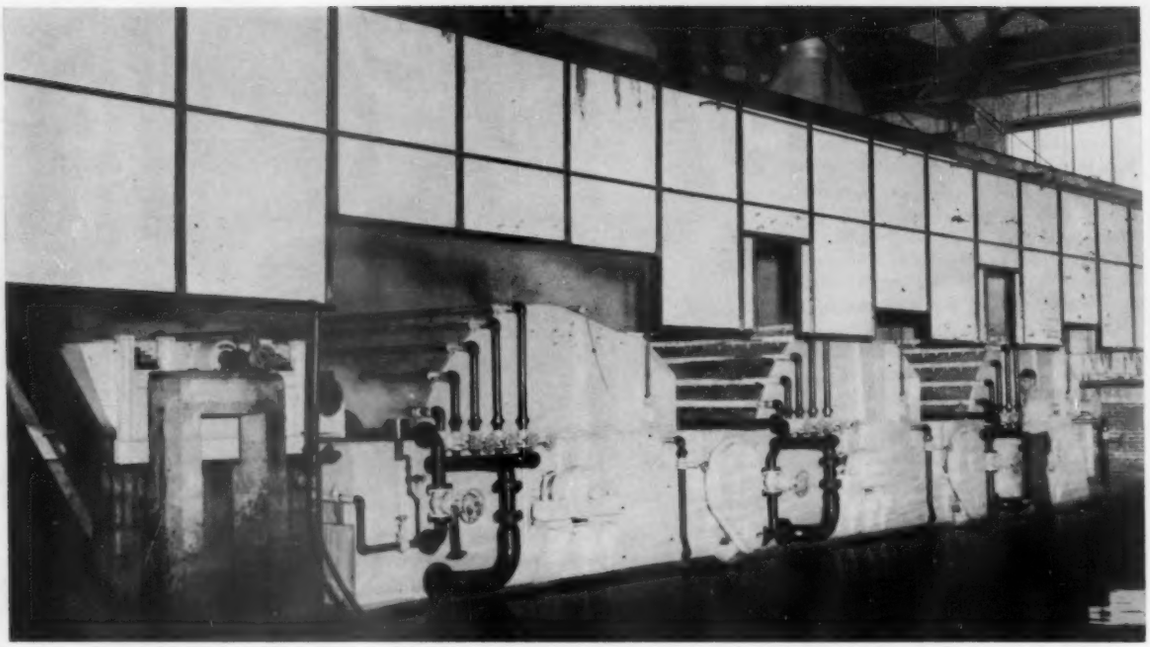
A part of the machine's output goes to the company's new converting plant, which went into production last year at Vancouver, but a large part is marketed in Western Canada and the balance goes into export markets.



SPECIALTY MACHINE (No. 2, 184-in.) inaugurated M&B's production of kraft paper board.



REFINING HI-PERMANGANATE pulp with Claflin in kraft mill.



Brown Stock Washing Section in Tacoma, Wash., Mill . . .

Three Impco 9.5 x 16 ft. instrument-controlled washers processing stock for paper machine. Vent system and Transite hood by Ross Engineering.

Efficient System for Washing . . . . . Also for Screening Brown Stock . . . .

● The contrast between this efficient, instrument-controlled installation at St. Regis' Tacoma mill and the one it supersedes exemplifies 30 years of progress in the industry.

The "old No. 3 washer line," in production since 1928, was replaced by a modern, instrument controlled washing and screening section occupying an area immediately above the retired facilities. As pointed out by Gen. Mill Supt. S. K. Pratt, the system provides a major improvement to the mill. He says this 300 ton per day unit doesn't increase the capacity, "but it improves quality of St. Regis pulp and gives the pulp mill an increased efficiency." However the facilities do, Mr. Pratt notes, increase screening capacity by some 25%.

M. C. Bradley, pulp mill supt., says the new addition not only replaced the old 8x10 washers but also reduced the load on the mill's No. 2 washer line—three-stage, 8x12 ft. washers to the extent that it's now in standby readiness to supplement either No. 1 or the new No. 3 line.

Two types of kraft stock are produced regularly at this mill—soft (22 permanganate) going to bleach plant and the to the two pulp dryers, hard (28 permanganate) which goes to the paper mill unbleached. No. 1 washer system handles the pulp stock and No. 3 washer system processes the paper stock. When running on bleached paper the entire pulp mill produces but one stock.

New Equipment . . .

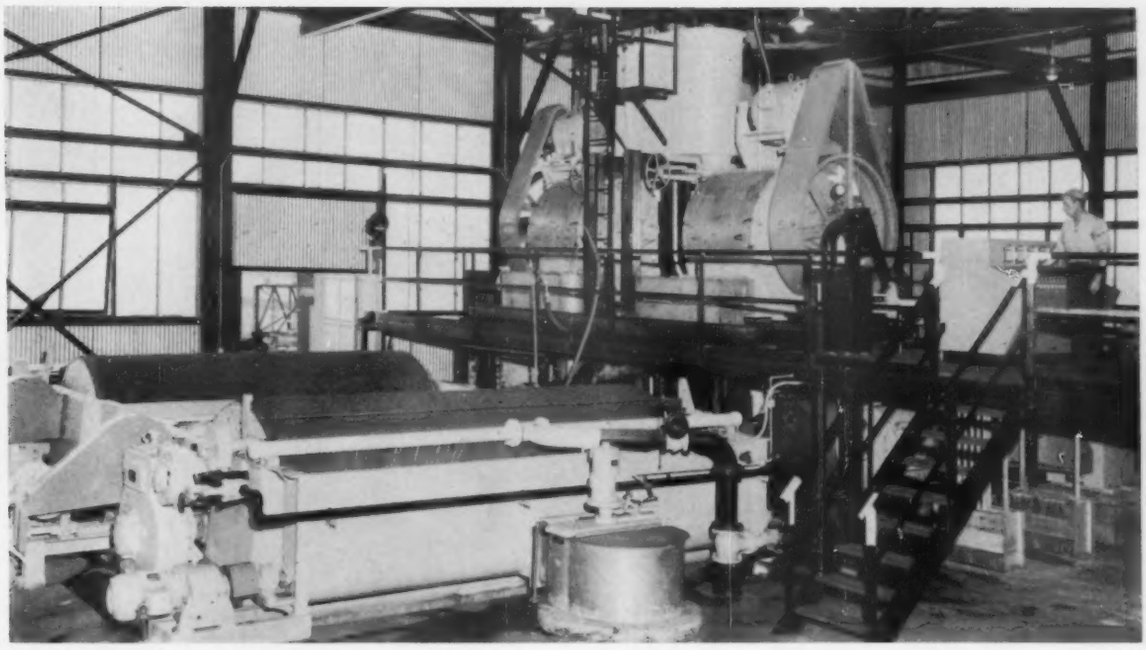
The new washer line includes three 9.5x16 ft. Impco washers equipped with Ross hood and ventilating system. Three Bird Jonsson deknotters remove coarse material just ahead of the primary washer.

New Impco intermediate double-rotor repulpers process stock immediately after the first and second washers. A final repulper provides additional processing of stock after it leaves the third washer. Horizontal filtrate tanks, one for each stage—strong, intermediate, weak—were installed in conjunction with the washer system for deaerating the liquor.

The new screening section, which reduces the load formerly carried by flat screens, includes two Cowan (Appleton Machine) and three Trimbey round screens, two valveless Impco deckers, each with built-in barometric leg, and a DeZurik consistency controller.

Stock flows from the screening headbox to each of the Cowan screens and accepts from these flow to the respective deckers for dewatering and storage. The three Trimbey screens (of four used as primary screens in the replaced system) are used as secondary screens. Accepts from the Trimbeys go to the deckers. Rejects from secondary screening are routed to a recently installed Bauer refiner for additional processing and then re-routed through the Cowan screens.

Two control consoles, supplied by Bumstead-Woolford and equipped with Foxboro instruments, enable a single operator to run the entire No. 3 washing-screening system. These consoles, one for washing components and the other for the screening end, are located on a mezzanine so that the operator gets a clear view of the



Screening Section of Modern St. Regis Addition . . .

(L to r) Impco deckers, DeZurik consistency controller (foreground), and primary screening section consisting of two Cowan (Appleton Machine) rotary screens feeding from single headbox. Secondary screens beneath platform do not show. Note Foxboro control console at far right, furnished by Bumstead-Woolford.

entire operation, unobstructed by the instrument consoles, which have much the appearance of modern spinet pianos. Recorders, controllers, remote manual valve stations, ammeters and drum-speed controls are all located in these consoles.

The washer control system is built around the Foxboro Magnetic Flow Meter system, which measures the flow of raw stock from the blow tank to the knotters. Precise measurement of incoming stock permits accurate shower control for uniform degree of washing and liquor Baumé. Hot water wash on the final stage and incoming black liquor are automatically ratioed to incoming stock. Level control on intermediate liquor tanks is automatic. The equal percentage valves on liquor and water flow are of Foxboro manufacture, while butterfly and stock valves were made by Fabri-Valve.

Power Modernization . . .

The control center of the washing system is a new electrical substation. The first of six new transformers has been installed together with switch gears to provide adequate power and overload protection.

The transformer is a Westinghouse 1,000 kva Type SL. Five General Electric Speed-Variator units supply direct current for the main washer and decker drive motors.

A. J. Sorenson, plant engineer, said the substation is the beginning of a power modernization program now under way at the plant. The transformer room and modern motor-control room are directly below the washer house floor.

Mr. Sorenson pointed out that the motor-control center has filtered and tempered air supplied in adequate volume for cooling and pressurizing the substation, thus eliminating maintenance problems resulting from dust and other foreign matter.

New Pump Series . . .

A battery of five series 3139 Goulds pumps purchased through R. M. Wade & Co., Seattle, was installed in conjunction with the new addition. According to Mr. Sorenson, all five pumps have the same dimensional specs (14x16x20) but the capacity ranges from 4,000 to 6,000 gpm, the output of each specifically determined by the particular impeller used and the rpm at which driven. This new series of Goulds pumps was selected because of high efficiency rating and the complete standardization of components except for impellers. The 3139 series became available only recently.

The pumps are driven by Westinghouse motors. A 1% stock pump and white water pump are powered by 200 hp, weak black liquor and weak wash liquor pumps have 150 hp motors and 125 hp motor powers the strong black liquor pump.

Small—But Readable

Though consoles and instruments in them appear as miniatures, the recording charts are of same size and readability as those in usual, large, rectangular-case instruments.

FILLER STOCK SYSTEM REJECTS FALL into hopper placed under chute leading from Bird Jonsson screen. Platform truck moves hopper to disposal area at shipping dock.

No Waste Handling Headache

A simple but effective waste handling system has proved well worth the investment in planning and equipment at The New Haven Board and Carton Co., New Haven, Conn. New Haven's system has three ingredients: use of self-dumping, easily moved steel hoppers for collection of waste; a standard but flexible schedule for pick-up and emptying hoppers; and immediate removal of waste from the plant site.

New Haven chose steel hoppers after experiment proved wood boxes didn't stand up to rough handling. The hoppers, manufactured by Roura Iron Works, Inc., are of 1-yd. capacity and are mounted on skids which permit them to be lifted and transported by fork or platform trucks. The self-dumping feature speeds emptying.

Of the eight hoppers used by the company, four have permanent stations. The other four are spares or are moved to various locations as needed. The pick-up schedule varies with each station, depending on the amount of waste, but every hopper is emptied at least once a day. The waste removal procedure at the shipping dock is the same for all hoppers.

Permanent hopper stations are at the deragging unit on the filler stock system, at a Bird Jonsson screen, at a Shartle junker attached to a 20-ft. Shartle-Dilts Hydrapulper unit and at five flat screens serving the backliner and filler systems.

When removed from the various stations, the full hoppers are placed in a designated area on the shipping dock. At least once a day, usually in late afternoon, the accumulated waste is emptied into a dump truck and removed from the premises.

HOPPER DUMPS SCRAP WOOD into dump truck, to be hauled to disposal pit. When operator releases locking handle on rear of hopper, hopper dumps itself and returns to upright position, automatically locking.

Michigan Forum Spotlights Automation

Gearhart ..... Nadelman

At Industry Forum, D. B. Gearhart chats with Dr. A. H. Nadelman, head of paper technology dept., Western Michigan University, Kalamazoo.

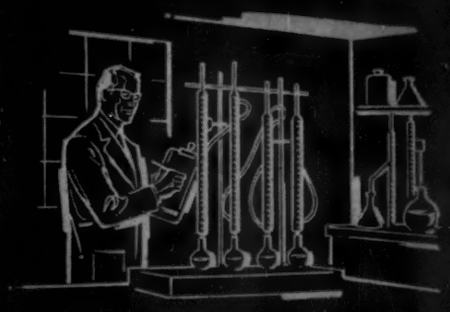
Ways and means of improving manufacturing operations through automation were discussed at a recent Paper Industry Forum at Western Michigan University, Kalamazoo, presented by General Electric Co. D. B. Gearhart, G. E.'s User Industries Sales Dept. local manager, planned the forum, with cooperation of the university and local mills.

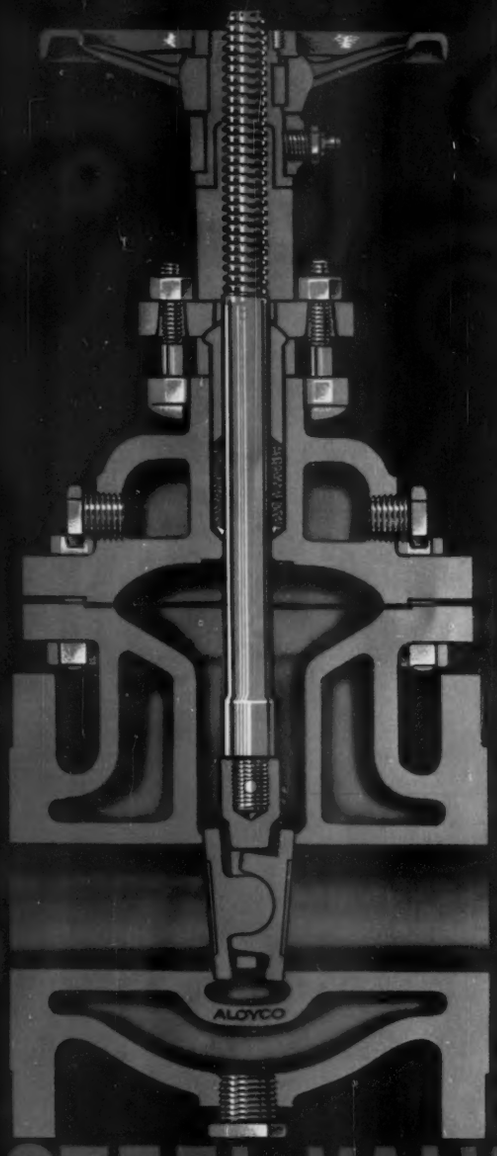
After a welcome by Dr. George Kohrman, dean, School of Applied Arts & Sciences, WMU, J. P. Smith, manager-application engineering of G. E.'s Michigan district, gave a brief introduction to automation. A sound movie, "Automation & Mr. Halstead," pointed out the importance of new automation techniques.

A thorough analysis of the place of automation in the paper industry was presented by these papers: "A Practical Concept of Industrial Automation," by E. B. Stavely, Jr., G-E application engineer, Detroit. "Sensing and Measurements in the Paper Industry," by E. H. Hammerstein, G-E application engineer, Detroit. "Numerical Data Logging System Applied to Tinning Lines and Related Web Processing Industries," by Mr. Stavely.

"Computers in System Control," by B. Warriner, manager-industrial sales, computer dept., G. E., Phoenix, Ariz. "Operation Upturn," by S. C. Coale, manager-advertising and sales promotion, G-E Michigan district, Detroit. "Value Analysis," by R. F. Price, methods analyst, metallurgical products dept., G. E., Detroit. "Economic Situation," by J. W. Channell, senior analyst, G-E market research, Schenectady, N. Y.

The meeting was so successful that G. E. plans to hold similar forums to present these same papers to other groups throughout the country.





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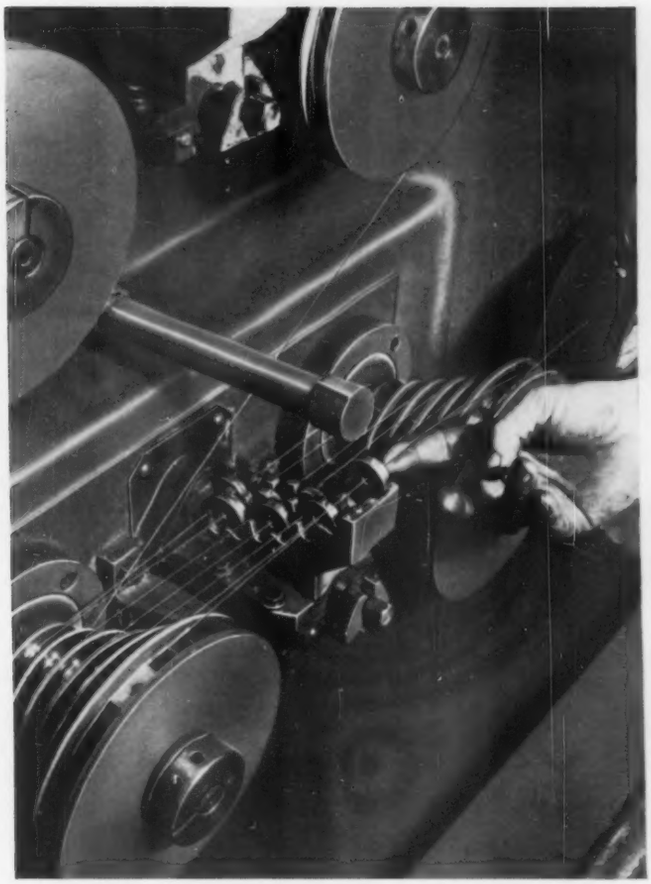

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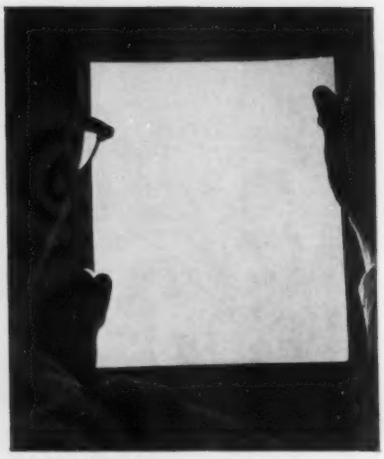

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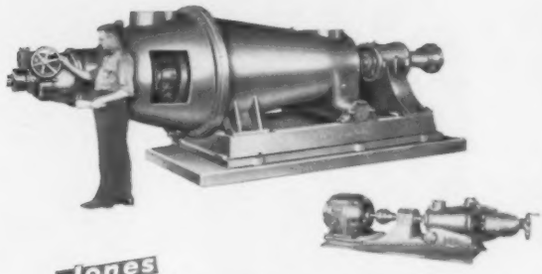

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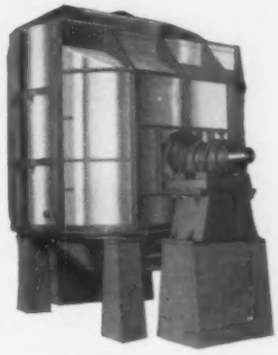

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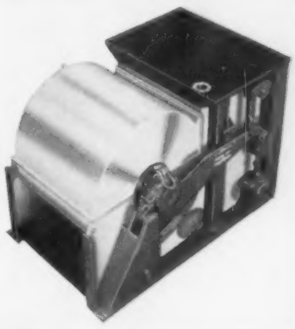

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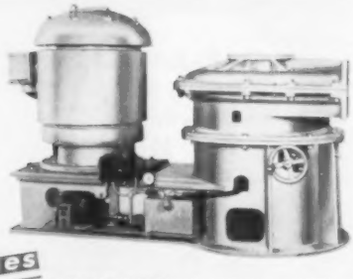
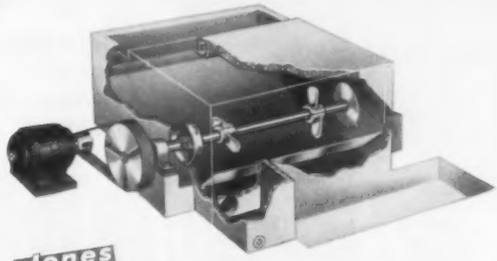


Jones ROTO-PULPER — Compact, vertical, single disc refiner designed to handle high-consistency stock. Variety of interchangeable plates for mixing bleach, defibrating, decorticating, shredding, etc.



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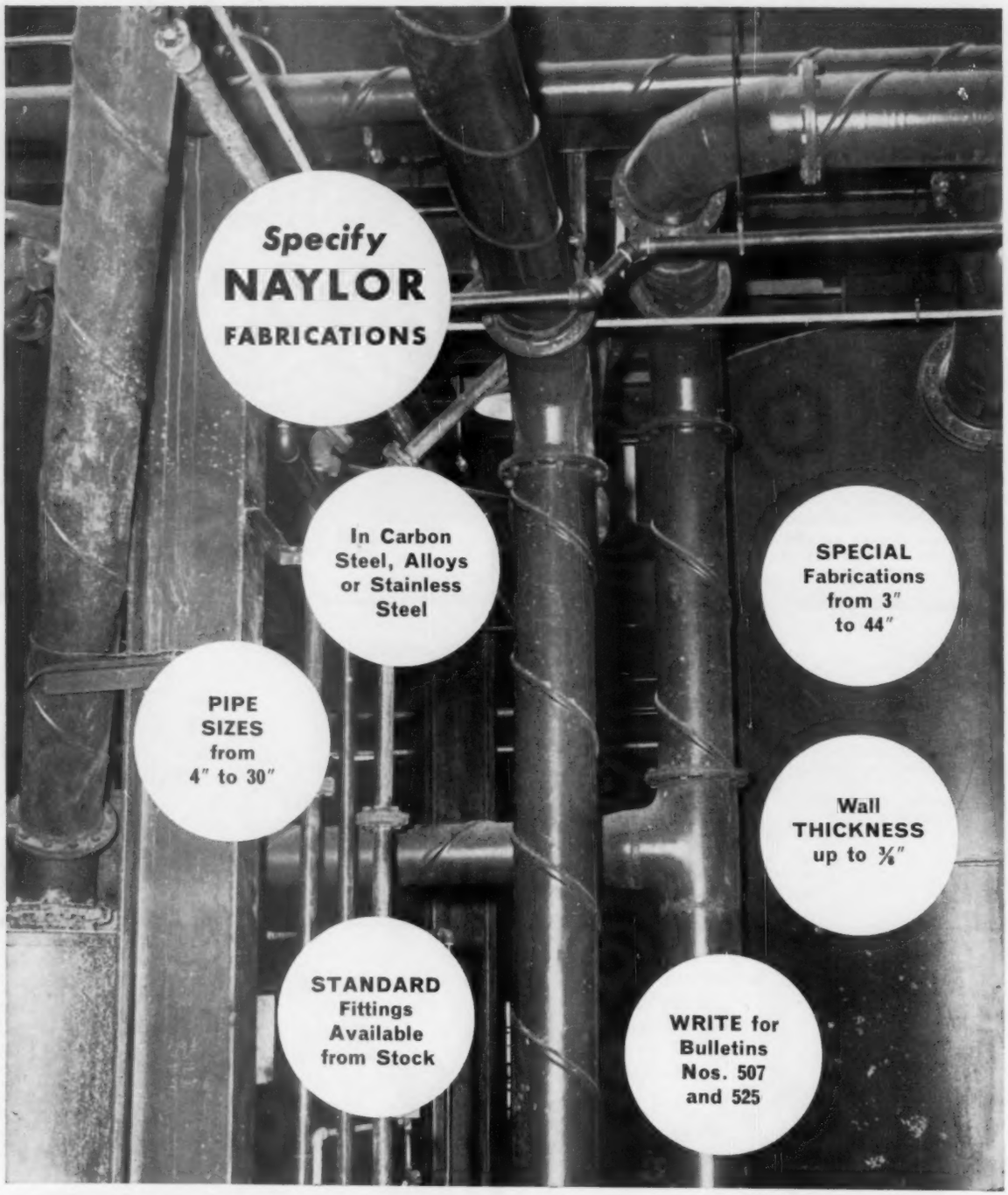
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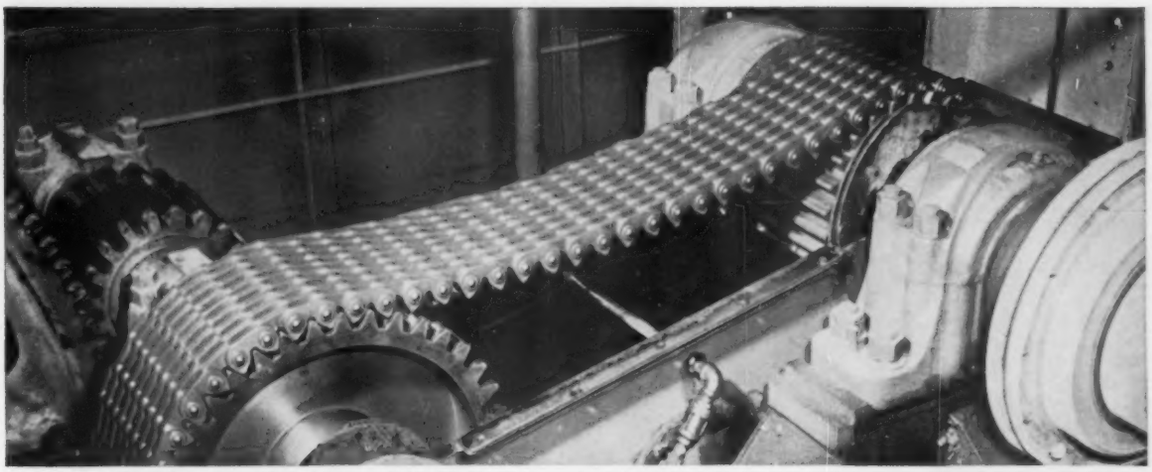
*name upon request; a reprint describing this installation is also available



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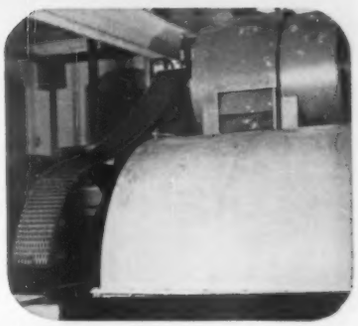
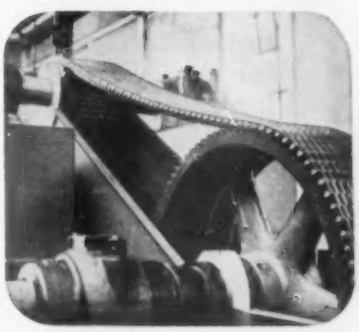


LARGE OR SMALL HP. On a 300 hp drive like this or at fractional hp, silent chain is always lower in ultimate cost.



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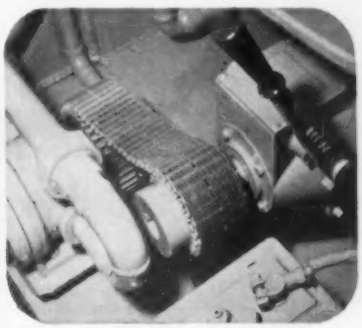
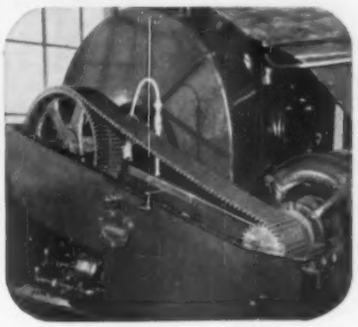
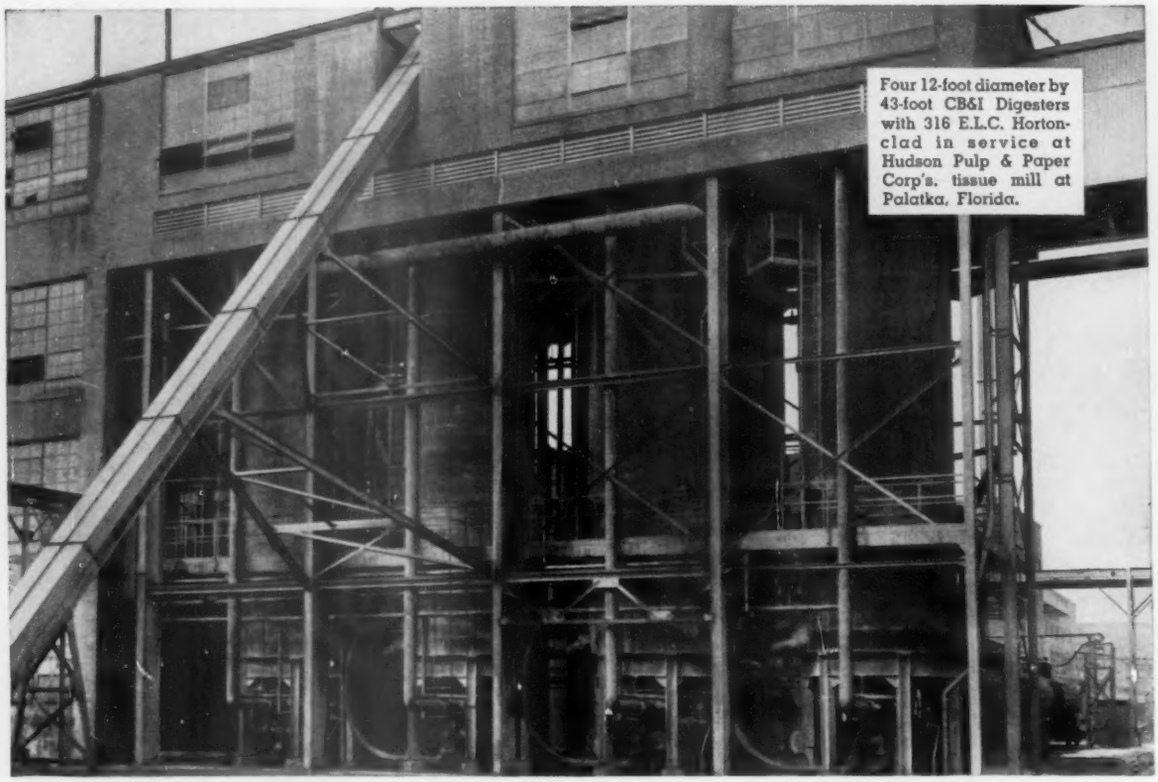


LIMITED SPACE. Easy to assemble in close quarters, Link-Belt silent chain permits built-in drives, compact housings.



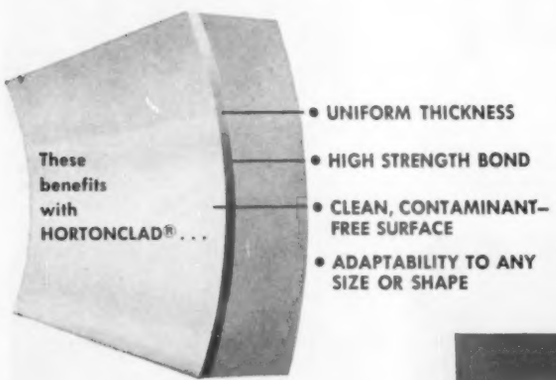
LONG LIFE. This drive is 16 years old and still going strong. Not unusual—many others have lasted twice that long.



Four 12-foot diameter by 43-foot CB&I Digesters with 316 E.L.C. Hortonclad in service at Hudson Pulp & Paper Corp's. tissue mill at Palatka, Florida.

HORTONCLAD®

better corrosion protection for clad vessels with high vacuum brazing process


These benefits with HORTONCLAD®...
• UNIFORM THICKNESS
• HIGH STRENGTH BOND
• CLEAN, CONTAMINANT-FREE SURFACE
• ADAPTABILITY TO ANY SIZE OR SHAPE

Hortonclad, available only in CB&I tanks, pressure vessels and other clad structures, is unlike other clad materials. The bond is accomplished by a flux-free high vacuum brazing process producing a clad plate with an integral and continuous bond of high strength. Uniform clad thickness results as both alloy cladding and backing are in their final thickness *before* bonding. Silver, stainless steels (both chromium and chromium nickel) nickel, and high nickel alloys such as Monel, Inconel, and Hastelloys B and F can be employed in the Hortonclad process.

In corrosive service, Hortonclad permits the use of higher temperatures, concentration and pressures —without the high cost of solid alloy vessels. For further information on its application, write our nearest office . . . ask for the *Hortonclad* bulletin.

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FP-20

TO HELP YOU PROCESS MORE PROFIT FROM PAPER

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STARCHES

the complete paper mill line...

OK Keogel—An effective cold water swelling beater additive. Simple to use ...no cooking...just add to beaters. Requires no involved equipment or cooking procedures. Disperses readily ...causes no "Fisheyes." High resistance to breakdown...for better starch retention and higher strength tests and fiber bonding.

OK Keofilms—Complete range of controlled viscosity thin boiling starches ...adaptable to many surface sizing problems.

OK Keozyme—High purity, consistent, carefully processed corn starch for enzyme conversion. Exacting quality control to insure low residue and optimum conditions for proper enzyme action. For surface sizing or pigment coating binder this starch offers highest quality available.

OK Keoclors—A new line of oxidized starches...for coating adhesive and surface sizing application. Surface sizing at press or calender will benefit from controlled and stable viscosity, good penetration and color. Adhesive strength and colloidal characteristics offer improved bonding and operation for medium and low solids pigments coating.

OK Keocote—Enzyme converting corn starch with lower than normal peak viscosity. Particularly adaptable to operations requiring conversions at high starch solids or in presence of pigments. Low initial viscosity permits more rapid heat transfer and even conversion.

OK Special—Starches will be formulated for your needs... phone or write for a Hubinger paper starch representative who will be glad to help you solve any starch related problem.

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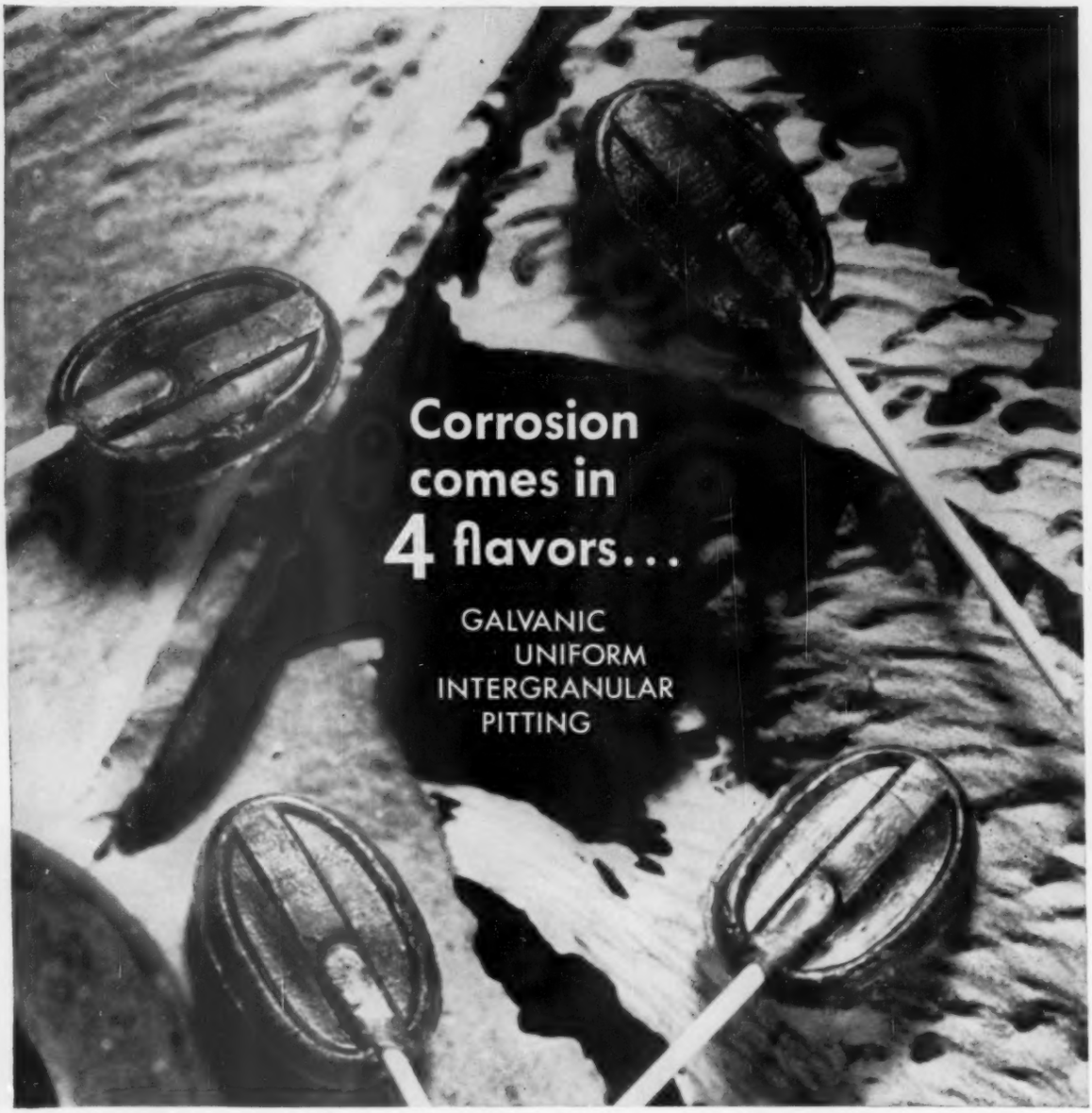
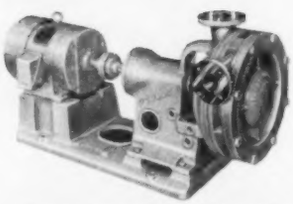


Which ones do *you* want licked?

They're all sour—when you have to pump corrosives. You can lick all four when your pump is made of the right materials.

You know what you have to pump. We know how to furnish pumps to handle it.

We'd like to hear your problem.



GOULDS-PFAUDLER GLASSED PUMP. Here's a unique new centrifugal pump that joins the unexcelled corrosion resistance of Pfaudler glass to the sturdy construction of Goulds pumps. For complete details, send for our Bulletin 725.2.

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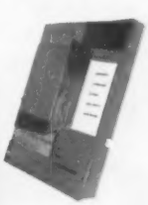

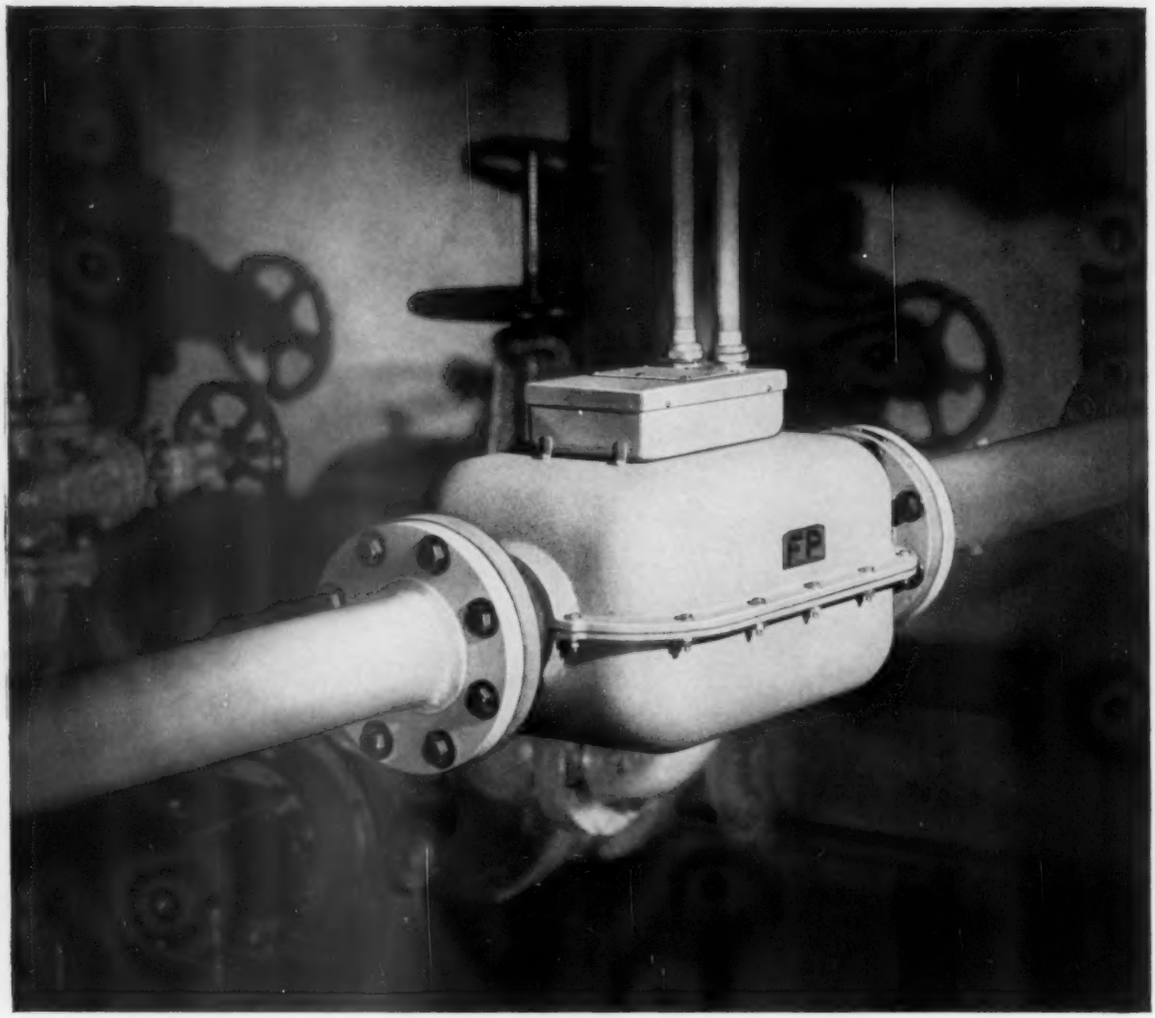

NEW FLEXIBILITY IN OBSTRUCTIONLESS FLOWMETERING

Here's the world's *easiest-to-operate, easiest-to-read* magnetic flowmeter. You can set any flow value at *full scale* . . . from 1 foot per second to 30 feet per second . . . at the turn of a direct-reading dial! Accuracy is ± 1%, regardless of piping configurations. You get all the advantages of obstructionless flowmetering . . . plus these EXCLUSIVE F&P features . . . at no extra cost:

- *Any* primary is interchangeable with *any* secondary . . . no custom matching of meter to recorder.
- Remote recording *up to 2000 feet* from the meter.
- Range from 0.1 to 30 feet per second.
- Power requirements substantially reduced . . . 115v, 60 cycle a-c useable in *all* sizes.
- Can measure reverse flows *without auxiliary equipment.*
- Fast response time . . . 2-3 seconds for a 100% flow change.
- Adjustable damping of flow signal.

For complete details get in touch with the F&P field engineer nearest you and write for Catalog 10D1416. Fischer & Porter Company, 2208 County Line Road, Hatboro, Pa. In Canada write Fischer & Porter (Canada) Ltd., 2700 Jane St., Toronto, Ont.

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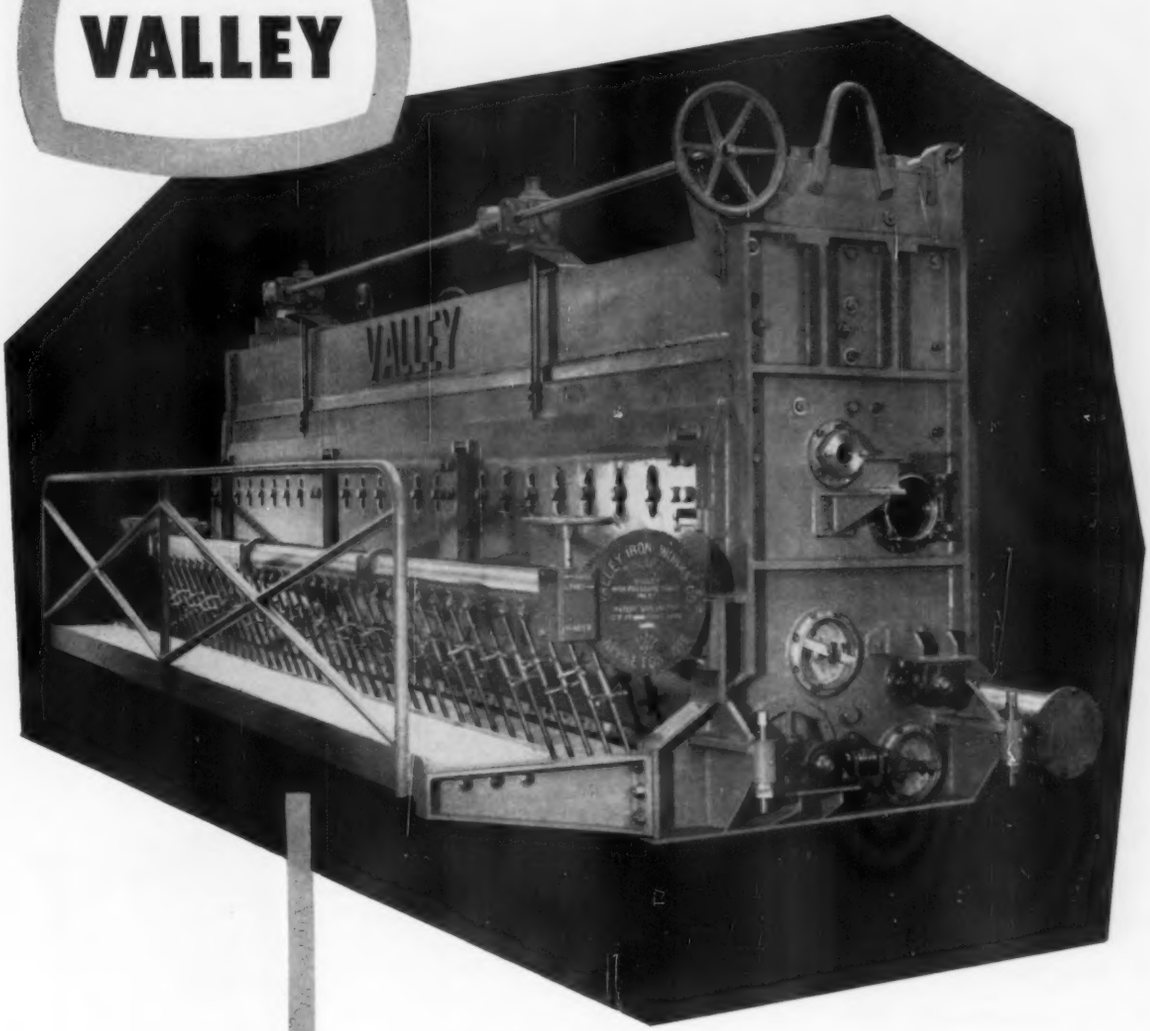
INLET-HEADBOX COMBINATION

by **VALLEY**



Whenever we advertise "Another Airloaded Headbox by Valley", it means that another mill has taken a progressive step to protect its competitive position and to strengthen its capacity for increased profits. We will be pleased to supply you with comprehensive facts and data. Your inquiry will be welcomed.

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Canadian Representatives:
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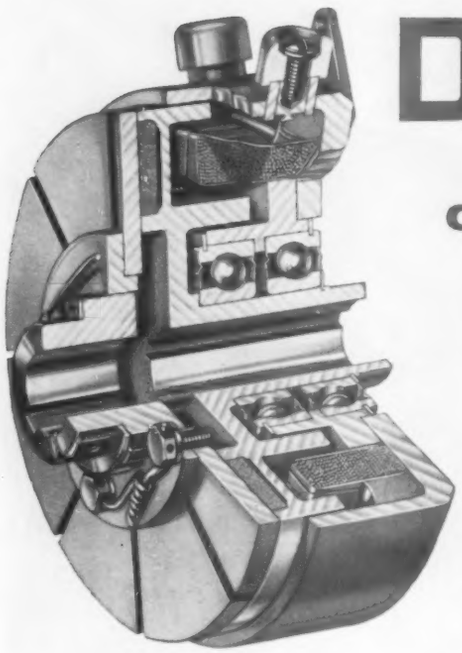
New—Small Sizes!

EATON DYNA-TORQ

MAGNETIC-FRICTION CLUTCHES and BRAKES



STATIONARY-FIELD, BEARING-MOUNTED DYNA-TORQ CLUTCH

Now Available in a Full Line from 1¾" to 15" Diameter

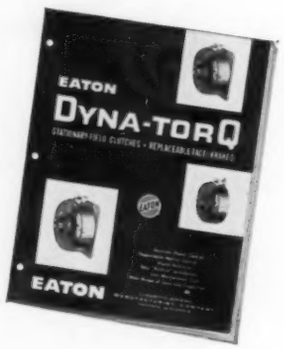
Eaton Dyna-torQ Magnetic-Friction Clutches and Brakes provide a simple, accurate, responsive method of controlling power and motion in today's complex production and processing machines.

The new smaller sizes and new design types of Dyna-torQ Stationary-Field Clutches and Brakes enable Eaton to offer a well rounded line, including flange-mounted and bearing-mounted clutches, and replaceable-face brakes. Unique features of design and construction result in worthwhile maintenance cost savings. Dyna-torQ units, easily and quickly installed on new machines or existing plant equipment, deliver many highly desirable advantages.

Dyna-torQ Magnetic-Friction Equipment Offers these Important Advantages:

- ★ Accurate power control
- ★ Dependable motion control
- ★ Rapid response
- ★ Easy "built-in" installation
- ★ Low maintenance costs
- ★ Compact plug-in type controls—may be remotely mounted
- ★ Inter-changeability of parts

Send for this new illustrated bulletin giving complete description and specifications covering Dyna-torQ Stationary-Field Clutches and Replaceable-Face Brakes.



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Dyna-torQ Equipment is Available through Dynamatic Distributors in all Leading Cities

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DYNAMATIC DIVISION
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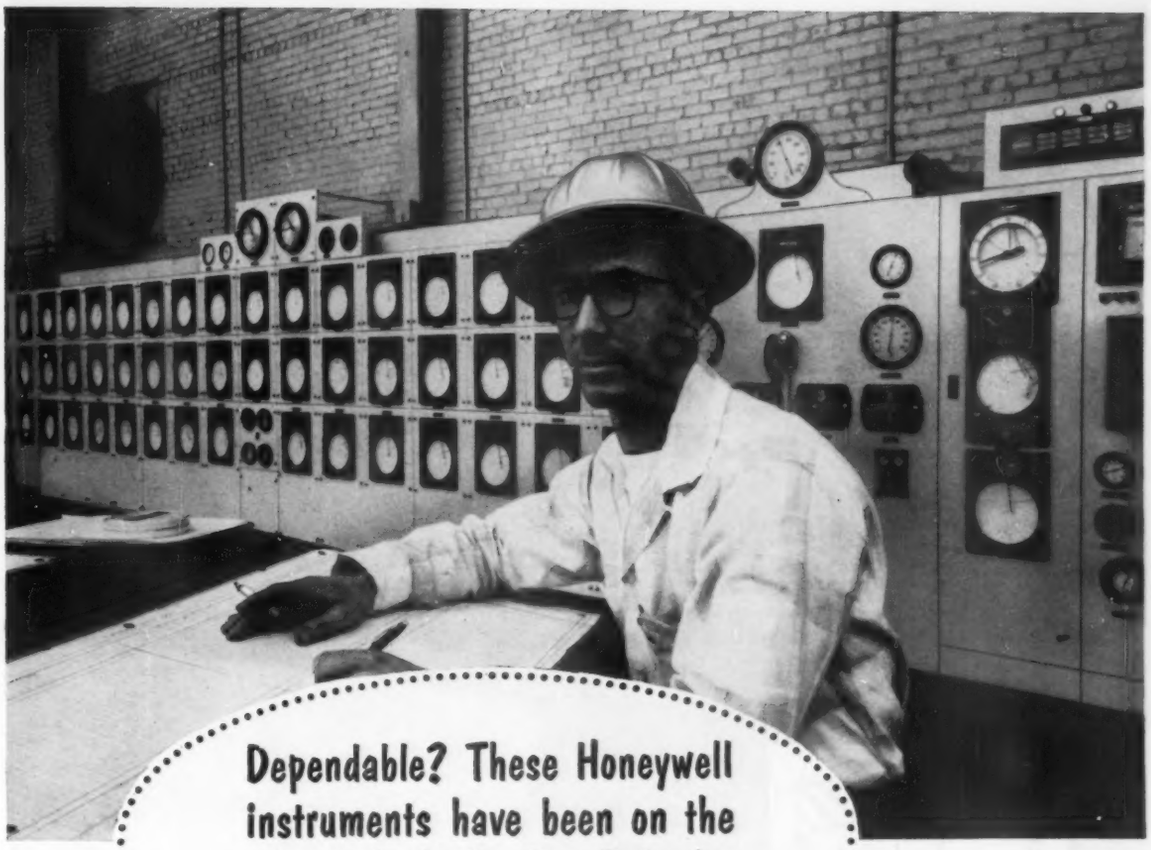


Dependable? These Honeywell instruments have been on the job at North Carolina Pulp Co. for over 10 years!

In instruments, dependability is as important as accuracy. You can't gain the full advantage of automatic control without it.

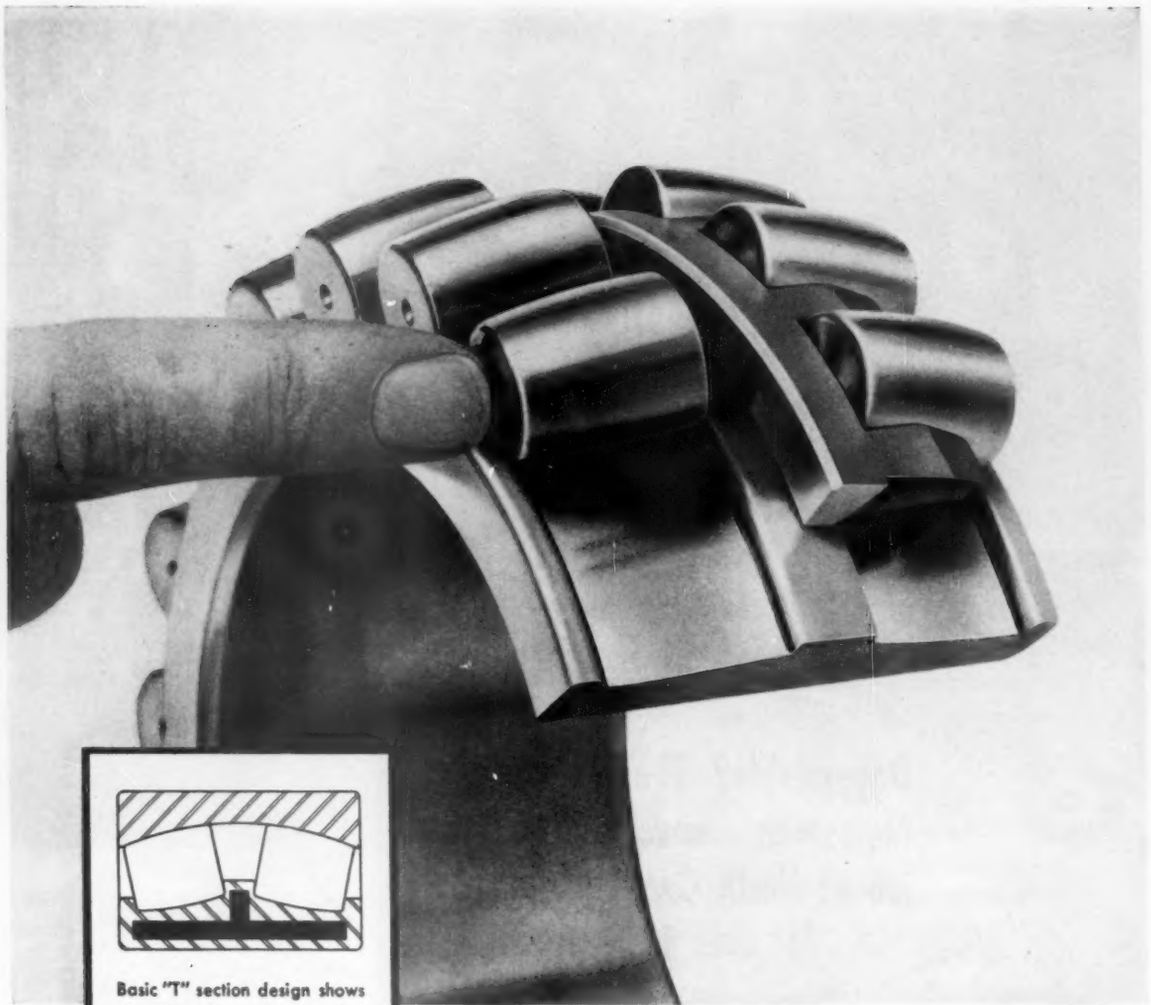
The dependability you can expect of Honeywell instruments is well demonstrated at North Carolina Pulp Company, Plymouth, N.C. Here, many Honeywell instruments have been in operation since 1938, and are still going strong. In the turbine room shown above, some 54 Honeywell recorders, controllers, indicators and flow integrators average well over 10 years of accurate, reliable service, with minimum maintenance.

You can see other examples of the long-term dependability of Honeywell instruments in mills across the country. Profit by it in your own mill. Your Honeywell field engineer can show you how. Call him today. He's as near as your phone.

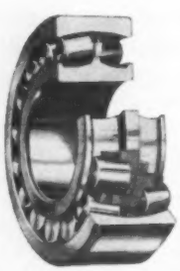
MINNEAPOLIS-HONEYWELL, Wayne and Windrim Avenues, Philadelphia 44, Pa.

Honeywell

First in Control



Basic "T" section design shows "backbone" construction that insures positive roller guidance and stability without skewing under all load conditions.



For roller stability...

there's nothing like "the bearing with the backbone"

The only *positive* way to guide rollers is by an integral center guide flange—backbone of the *Torrington* Spherical Roller Bearing. No floating ring can match it for stability under heavy radial and thrust loads.

This "bearing with the backbone" insures true rolling motion . . . prevents stress concentration . . . means minimum friction. It makes possible open-end cage design, too, with no shrouds to impede circulation of lubricant to bearing contact surfaces. There is less heating and more positive lubrication.

The integral center guide flange is adapted from the same principle used in the design of Torrington Tapered Roller Bearings. This refinement is typical of Torrington's uncompromising engineering that assures you the ultimate in bearing performance. **The Torrington Company, South Bend 21, Ind.—and Torrington, Conn.**

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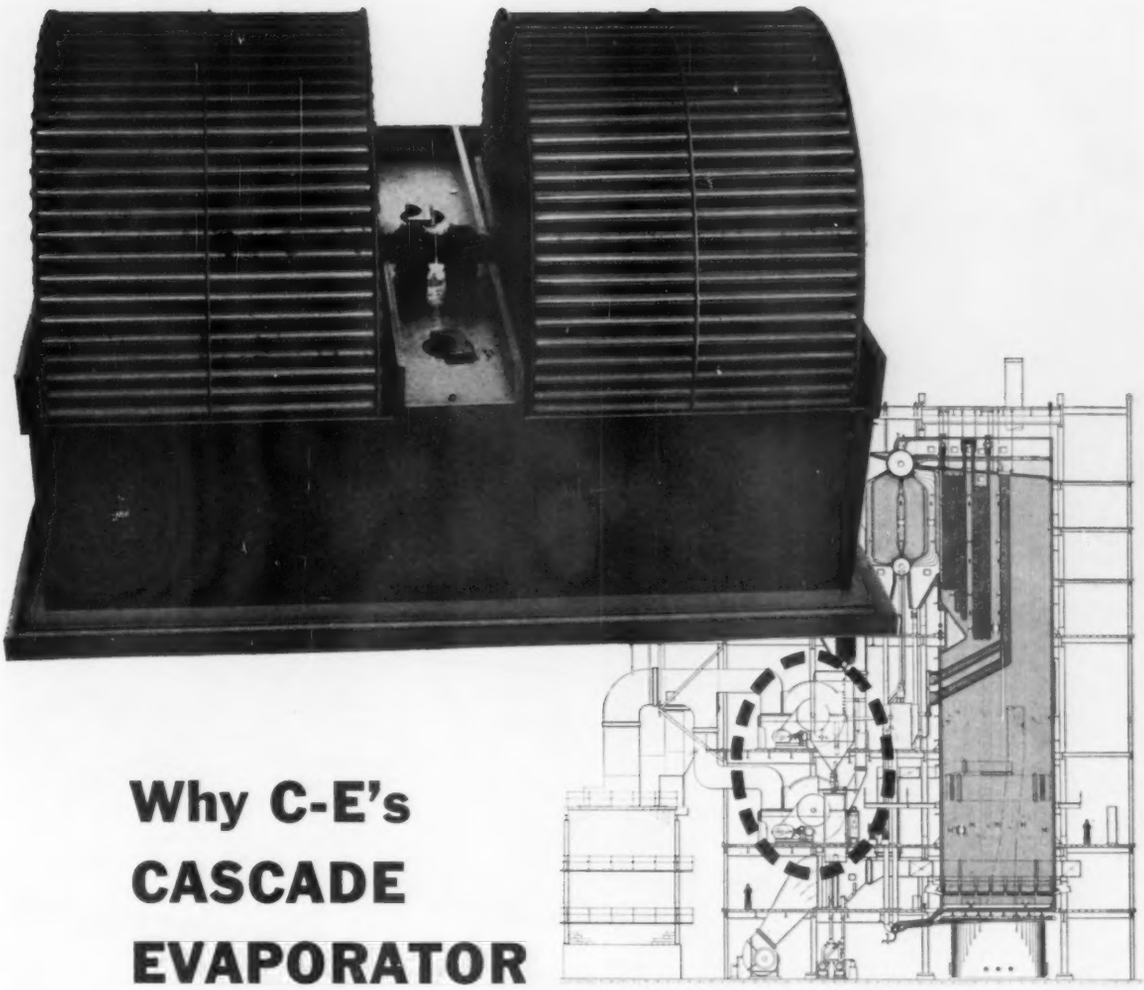
District Offices and Distributors in Principal Cities of United States and Canada

SPHERICAL ROLLER • TAPERED ROLLER • CYLINDRICAL ROLLER • NEEDLE • BALL • NEEDLE ROLLERS • THRUST



Why C-E's CASCADE EVAPORATOR

is the choice of leaders for black liquor recovery

Here are eight reasons why the Tubular Cascade Evaporator has long been favored in progressive pulp mill practice . . . why it is today the most widely used direct contact evaporator in chemical recovery systems:

- highest liquor concentration
- highest availability
- highest evaporative efficiency
- lowest power consumption
- lowest chemical losses
- lowest maintenance requirements
- widest load range
- best self-cleaning properties

Now manufactured and sold exclusively by C-E, Cascade Evaporators have already been specified for use in more than 120 recovery units. Of the total number sold, more than 50% represent repeat orders . . . an impressive testimonial to the satisfaction of their owners and operators.

Combustion will welcome your inquiries about the Cascade Evaporator – whether a new recovery unit or an existing installation is concerned. For more information, contact our *Paper Mill Division.*

COMBUSTION ENGINEERING

C-175

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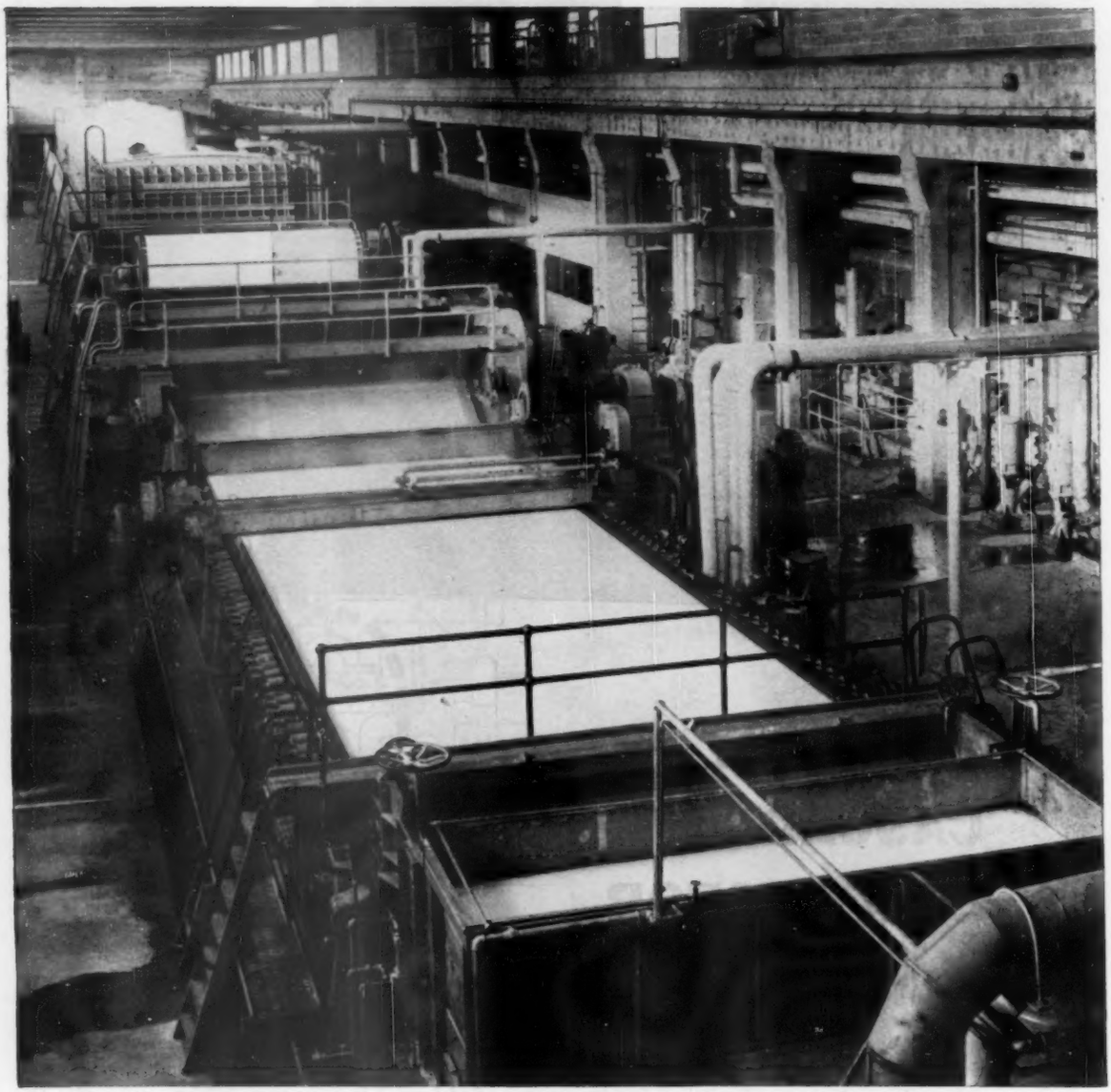
ALL TYPES OF STEAM GENERATING, FUEL BURNING AND RELATED EQUIPMENT; NUCLEAR REACTORS; PAPER MILL EQUIPMENT; PULVERIZERS; FLASH DRYING SYSTEMS; PRESSURE VESSELS; SOIL PIPE



The **DOMINION PULP DRYING MACHINE** at
British Columbia Forest Products Limited, Crofton Mill

178-inch wire width machine equipped with
Minton Vacuum Dryer — Rated capacity: 525 tons per day

PAPER DIVISION
DOMINION ENGINEERING
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Two New Bulletins

Chlorine Dioxide Bleaching Today . . .

This bulletin tells you why 43 pulp mills were using chlorine dioxide by the end of 1957, why six more are scheduled to this year.

There is a discussion of the several processes for generating ClO_2 and the various sequences of bleaching processes being used to bring pulp to new brightness levels.

Up-to-date cost data and delineation of the different types of pulp being treated are also included.

The author, retained as a consultant by Hooker, is widely known as one of the earliest pioneers in chlorine dioxide bleaching. (Ask for Bulletin No. 220.)

Pulp Bleaching

This new Hooker manual gathers together the most significant recent developments in pulp bleaching, as well as older established procedures.

A partial list of topics covered includes: Bleaching stages, procedures, and systems, Bleaching procedures by types of pulps, Continuous sodium hypochlorite production, Sodium chlorate system, Hooker chlorination system . . . .

The bulletin has 52 illustrations, including flow charts of the various processes for generating chlorine dioxide, chlorination systems, an automatic system for producing calcium hypochlorite, systems and equipment for chlorine and caustic soda handling. (Ask for Bulletin No. 200.)

Tear off the bottom half of this page and mark bulletin(s) you want. Mail to:

HOOKER ELECTROCHEMICAL COMPANY
1910 *Forty-Seventh Street, Niagara Falls, N. Y.*

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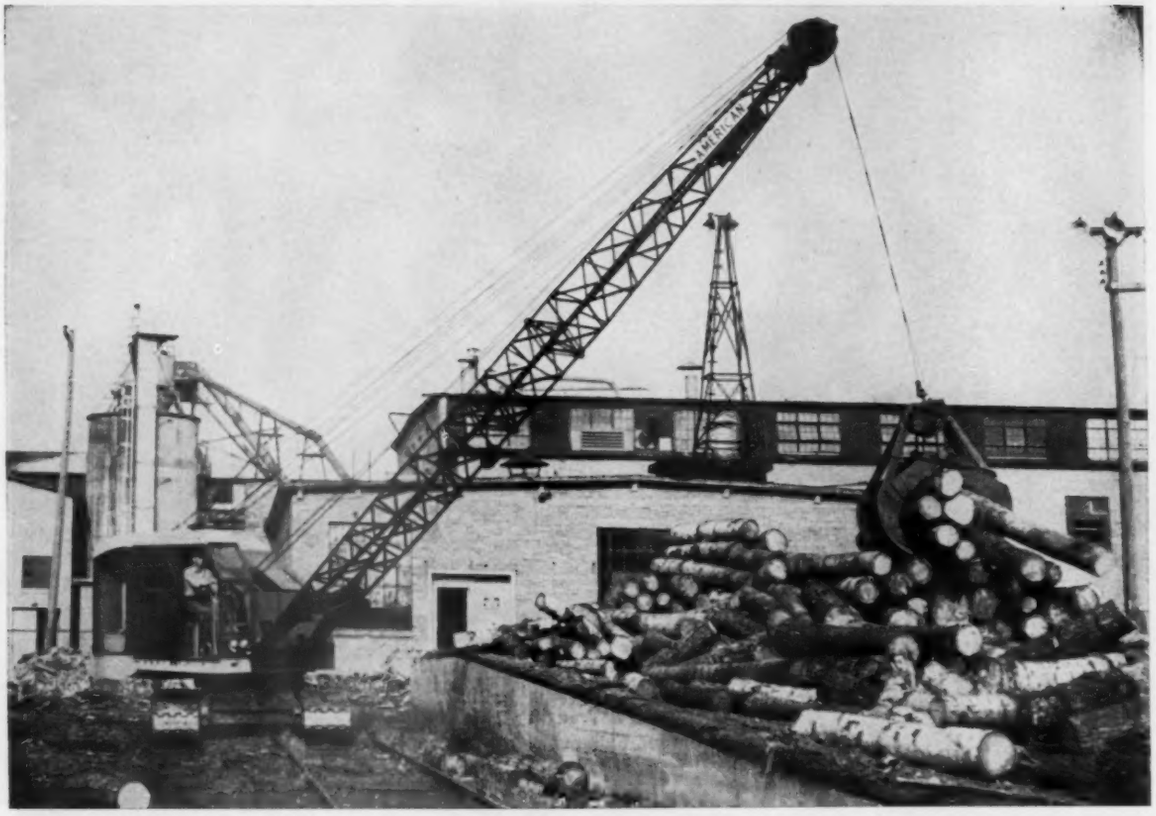

UP COMES A FULL LOAD of pulpwood. Powerful American Cranes with fast, responsive controls give operators pinpoint accuracy and consistently higher production rates. American's precision design and rugged construction keep them out of the shop, working on the job month after month!

PULPWOOD HANDLING RATE UP, COSTS DOWN...WITH AMERICAN

Pulpwood handling volume goes up—stays up—when American Cranes are given the job. Working this American 300 Series Crawler, the operator spots the grapple accurately, picks it up and swings it fast to pile logs quickly—keep pulpwood moving!

Americans do more work because, from every angle, they're designed for volume production. Fast, smooth swings—required on jobs like this—result from American's swing clutch design that maintains positive action hour after hour. For pulpwood handling, double tagline winches are available to position the grapple for fast pickups, accurate spotting! Highly maneuverable truck and self-propelled cranes—surefooted crawler cranes move around the woodyard easily.

The best operator is even more efficient with American's precision control system. Anti-friction bearings in the brake linkage actually cut "leg work" in half. This means up to 50% less push on the pedals—faster release with better control when lowering the load!

Pulpwood handlers have found that American Cranes maintain peak production levels longer and at substantially lower operating costs. *Their records prove it!* You'll find that versatile, dependable Americans return maximum production with minimum downtime and cost. Distributors have complete technical facts on the big American line with capacities that *start* at 12½ tons on rubber, ½-yard on crawlers.

EXCAVATORS-CRANES to 2 yds.-50 tons
LOCOMOTIVE CRANES to 130 tons
DERRICKS-HOISTS to 800 tons
REVOLVER CRANES to 400 tons

AMERICAN HOIST
and Derrick Company
St. Paul 7, Minnesota

AMERICAN HOIST PACIFIC COMPANY
Special materials handling equipment

CROSBY-LAUGHLIN DIVISION
Drop forged fittings for wire rope-chain

Portrait of a man making money with the new HOMELITE 7 21 Chain Saw

This man has put himself in the money making picture with the light-weight, fast-cutting Homelite 7-21 chain saw. Weighing only 21 pounds*, the 7-21 is balanced for easier, safer handling in any cutting location, any cutting position . . . lets you cut longer with less strain and effort. Its rugged gear drive delivers enough lugging power to fell trees up to 7 feet in diameter; enough speed to cut through 20" trees in 18 seconds.

Designed for the professional woodsman, the Homelite 7-21 has the 7 magic features that mean greater dependability, less down-time, more profit for you. These include features like: the famous Homelite high-compression, short stroke engine that delivers full cutting power in any position . . . tough, drop forged counterbalanced crankshaft to assure smooth running . . . simple piston pump oiling . . . automatic governor to maintain proper speed . . . large air filter to keep out sawdust, dirt, snow.

All these and the many other features of the 7-21 have been designed to put you in the money making picture. Find out for yourself, see a free demonstration of the Homelite 7-21 chain saw at your nearby Homelite dealer's.

Guaranteed for a full 7 months

*less bar and chain

Full line of attachments: Plunge-cut bow, 14" and 18"; brush cutter, clearing bar. Straight blade sizes 14" to 60"

HOMELITE
A DIVISION OF TEXTRON INC.
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Find Your Homelite Dealer In The 'Yellow Pages'

See a free demonstration of the Homelite 7-21 chain saw at your nearby Homelite dealer's

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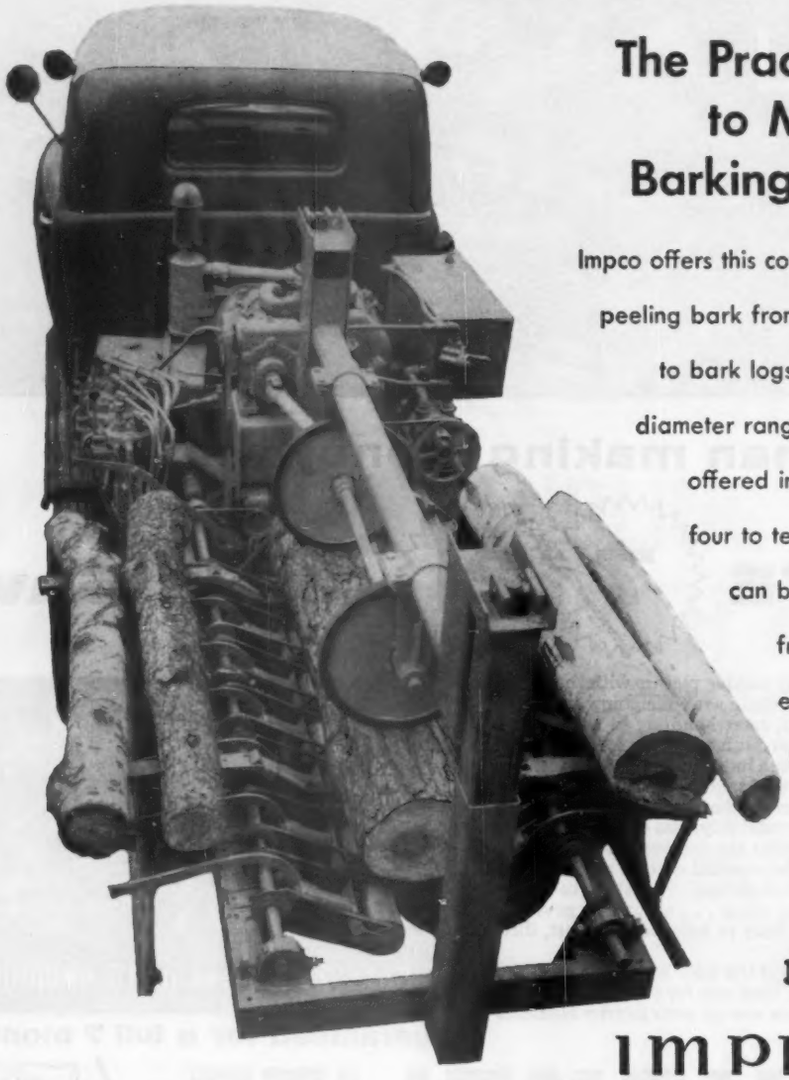
PORTA-PEELER
LOG BARKER



The Practical Answer to Multi-Unit Barking Operations

Impco offers this completely new portable unit for peeling bark from any type of wood. Designed to bark logs in the three to twenty-six inch diameter range, the side-fed Porta-Peeler is offered in various models for bolts from four to ten feet in length. 100% removal can be obtained even with crooked, frozen hardwood. One man can easily *Porta-Peel* four sticks per minute. For further information, write for Bulletin F1-2.

IMPCO®

IMPROVED
MACHINERY INC.
NASHUA, NEW HAMPSHIRE

In Canada, Sherbrooke Machineries Limited, Sherbrooke, Quebec

Swinging left to right, this gantry mounted Lorain rake unloads cars from track on either side of flume to speed pulpwood handling in the Acme, N. C. plant mill. Besides gantry mounted models, Lorain's complete line includes rubber tire models up to 75 tons or crawler mounted at capacities from 8 to 60 tons.

Fastest way from car to flume

Here's pulpwood handling at its fastest and easiest. One of dozens of Lorain rakes used by pulp mills across the country, this one owned by Riegel Paper Corporation, Carolina Division, reaches clear across rack cars to rake logs directly into the flume. Special parallelogram design of boom provides precise control of rake level for clean raking. Ground spillage is held to a minimum, car damage virtually eliminated. Cars move in and out of the yard on time to avoid costly demurrage.

There's a Lorain to cut *your* pulpwood handling costs: Lorains on gantries to unload directly to conveyor or flume . . . Lorains on rubber tires for high speed mobility in the woods or to scamper around mill or concentration yard . . . Lorains on crawlers for the toughest terrain or to speed your blockpile work at the mill. Use them with the attachment that does your job best—rake, grab, or grapple.

Ask your nearby Lorain distributor for the full story —and about his on-the-spot parts and service facilities that add so much when you buy Lorain.

LORAIN

THE THEW SHOVEL COMPANY, LORAIN, OHIO

More Pulpwood Per Man . . .
Give Your Operation A HAND

Harrison Pulpwood Harvester

Tailored for You *Designed for Quality*

- Loads 1 1/4 cords of pulpwood every 15 minutes.
- Can follow cutter into the woods and bring out the pulpwood.
- Hydraulic wood-handling attachment has 12 ft. radius on both sides.
- Wrist action places individual sticks or small piles on tilt-trailer hauled behind tractor.
- Mounted on Oliver Super 77 with Reversomatic clutch, torque converter, using 14:00 x 26 8-ply rubber tires.

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WILL LIVEN UP NORTH WOODS . . . Warner & Swasey Hopto hydraulic log grapple unit mounted on a Caterpillar D-6 starts to load sleds pulled by John Deere Tractor.

Complete Mechanization in "Bush"

transforms an Ontario pulpwood operation, serving Wisconsin mill, which formerly was by hand and horse

• Up in northern Ontario, completely mechanized winter pulpwood hauling operations will soon get under way at Newaygo Timber Co., Ltd. These include such equipment as International Harvester trucks and trailers, a team of Warner & Swasey Hopto log grapples and John Deere tractors, Johnson skid-loaders mounted on Caterpillar D-6's, etc. They liven up the "bush" with their activities loading and hauling out 8 ft. pulpwood. The scene of this activity is at Mosher, Ont., where Newaygo crews will be working in 60 below-zero weather before very long.

Mosher, a permanent camp, is one of three sites of Newaygo operations in this area. The other two are at Mead and Hearst. Between these three camps and a small amount of jobber wood, Newaygo will handle about 85,000 cords of pulpwood out from the bush country in the coming season. In past years, Newaygo's wood had been loaded by hand onto sleds pulled by teams of horses. These teams pulled the sleds to collection points where the sleds were made up into trains and hauled to storage areas by powered equipment. The sled trains that used to whip around on the ice roads disappeared last winter from all of Newaygo's operations and were replaced by trucks and trailers. However, it is only at Mosher that the entire operation has been mechanized.

While the final results of a careful and accurate time study are not in, the preliminary figures indicate that the mechanization of the Mosher winter wood hauling operation is an outstanding success. It eliminated hard, back-breaking, hand-loading of wood; completed the winter's operation in a shorter time; reduced man hours by at least 25%; and apparently substantially reduced costs.

H. S. Mosher, vice president and general manager, Ken Moland, general district supt., and Nick Melny-

Definition of terms:

BUSH—The northern Canadian woods.

STRIP-CUT WOOD—in cutting pulpwood cutting crews are assigned strips through the woods 66 ft. wide. This wood is cut and stacked in piles of approximately one cord. This is referred to as strip-cut wood.

SKID-CUT WOOD—at times the terrain, arrangement of trees to be cut, and other factors made it preferable to fell and skid tree lengths to roadsides where it is cut and stacked in 8 ft. lengths in larger piles usually with 30 to 40 cords to a pile but at times running up to 200 cords in a single pile.

A LONG REACH. Hopto reaches out to pick up load of 8 ft. pulpwood at Mosher, Ont. operation.

BEFORE RELEASE. Hydraulically operated and controlled Hopto has swung a load over the sled. Operator is positioning wood before release from grapple.

chuk, Divisional Supt., have combined a crew of men and machines into a balanced efficient team. Before looking at the job this team will do again this winter, let's look at the lineup of men and machines being used.

Here's the equipment:

Four Warner & Swasey Hopto log grapple units mounted on D-6 and D-7 Caterpillar tractors; 12 John Deere tractors; 30 sleds (hauled by John Deere tractors); 9 International Harvester trucks with trailers; 1 Lorain crane (⅜ yd.); 1 Northwest crane ¾ yd); 1 Johnson skid-loader mounted on a Caterpillar D-6; 1 Caterpillar D-8 dozer, and 1 motor grader.

NARROW TRAIL. After loading each cord of wood the Hopto must move up to the next. Note narrowness of the trail. Rough terrain makes moving difficult and slow.

Here's the crew of men:

Four men on supervision; 4 Hopto operators; 4 helpers for Hopto (assist in loading); 12 John Deere tractor operators; 2 crane operators; 11 helpers for cranes; 9 truck drivers; 1 Johnson skid-loader operator; 1 operator for D-8; 1 helper for D-8 operator; 6 garage staff; and 1 motor grader operator. This is a total of 56 men.

In addition to these men there are cooks, office personnel, etc., but men listed make up the primary working force of this winter hauling operation.

Operation in Capsule Form

Warner & Swasey Hoptos load sleds which are pulled by John Deere tractors to a collection point. Here a crane loads the wood from sleds onto trailers. Trucks haul the trailers to the storage area where another crane unloads the wood.

The procedure is so nearly in perfect balance that the failure of any one part can result in temporary bottlenecks. The answer to this problem is found in a Johnson skid-loader which acts as an equalizer. Normally this machine performs as a dozer clearing roads, assisting smaller tractors when they get stuck, and other work of this type.

Then perhaps a runner on a sled breaks. The John Deere tractor is delayed. That results in one Hopto waiting for a tractor to load. The crane is soon waiting for wood and the truck is delayed. As soon as a situation like this starts, the Johnson skid-loader lends a hand hauling wood to the crane until the sled (or other equipment) is repaired and returns to work.

An equalizer of this nature appears to be necessary to a woods operation where the rough weather and terrain can cause temporary breakdowns of any type of equipment.

In the operation three tractors are assigned to work with each Hopto. Each tractor pulls one sled with a capacity of 2¼ to 2½ cords of wood or

Newaygo Timber Co. Has Been Cutting 40 Years

The Newaygo Timber Co., Ltd., with headquarters in Port Arthur, Ont., has been cutting pulpwood in the Canadian woods for more than 40 years. Present company operations center around Hearst, Ont., halfway between Port Arthur and Hudson Bay. The subject of this report is Newaygo's Mosher operation, about 60 to 70 miles south of Hearst and reached only by train.

Mosher is a permanent camp with mess hall, recreation hall, one store, garages, shop, storage buildings, office, and homes for key personnel and families. School is taught for some 30 children in the recreation hall up to and including the eighth grade. Plans are under way for a separate school building.

One permanent road leads from Mosher into the "bush" where the wood is cut. This gravel road is open in both summer and winter and was constructed by the company. Leading off from this road are ice roads, passable only in the winter. These roads are built by dozers establishing a rough grade and then flooded by 3,000 gal. tanks mounted on runners. The ice provides a fairly smooth road surface. Hauling wood out of the bush is strictly a winter-time job.

ON WAY TO COLLECTION POINT. Here a loaded sled pulled by a John Deere tractor makes its way through the bush to a collection point where the load will be transferred to a truck.

CRANE UNLOADS SLED. As soon as Lorain crane has unloaded the sled the John Deere starts back to the Hopto for another load. Three John Deere and six sleds are assigned each Hopto.

UNLOADS TRUCKS QUICKLY. At the rail sidings a Northwest crane unloads the International Harvester trucks so they can return speedily to the collection point. Each truck will make five to six trips a day.

ROAD BUILDER. While wood is being hauled out of the bush, this Caterpillar D-8 is busy clearing a path into new cutting locations. In winter these paths will be flooded and turned into ice roads for hauling.

more. The maximum haul one way for these tractors is one-half mile.

Geared to Hoptos

The entire operation is geared to the performance capacity of the Hoptos—the basic operation. The productive ability of the Hopto has therefore been the subject of intense interest in the time study conducted. Records show that a single Hopto has loaded as many as 100 cords of 8 ft. wood in only four hours. This was accomplished under excellent conditions with very little moving.

Usually the Hoptos are loading strip-cut wood with one cord piles of wood located 25 to 50 ft. apart. This requires considerable moving time and naturally a resulting loss of productive time. Under these conditions the Hopto units have been averaging more than 100 cords each during an eight-hour day, including moving time. Between the four machines, Newaygo has been removing up to 500 cords of wood a day from the bush.

The time study involved spending three days with each Hopto. The figures from the study show that the Hoptos as a group averaged 23.7 cords of strip-cut wood loaded per hour during actual loading time only. This did not include moving time.

On skid-cut wood where 40 or more cords are stacked together in the bush, the Hopto units averaged 26 cords an hour and 130 cords of wood a day including moving time. However, most Newaygo wood was strip cut.

The terrain found in the bush can make a tremendous difference in the efficiency of loading. Where the ground was level, Hopto units were able to substantially increase their daily production. In rough, hard-to-travel locations, the daily average dropped.

Deere Tractors Have Busy Day

The John Deere tractors with an average load of 2¼ cords of wood make 15 to 17 trips a day hauling wood to collection points. A typical day for a single John Deere would involve 3.68 hours in loading, 1.25 hours in hauling, 1.03 hours in unloading, and 1.43 hours in making the return run. The balance of this particular day was spent in gassing up, coffee break, and moving from one strip to the next.

These rugged little tractors pull their heavy loads surely and quickly through the rough terrain to the truck-loading site. Here the Thew-Shovel Co.'s Lorain crane loads the trucks with nine to ten cords of wood. The trucks average about 5 to 6 trips a day to storage areas. The truck-hauling distance runs up to 22 miles each way. On occasion the nine trucks have made as many as seven trips each.

This wood is unloaded from the trucks by a Northwest crane and stockpiled for shipment to paper mills throughout the year. All of the Mosher wood is shipped to the Appleton, Wis.,

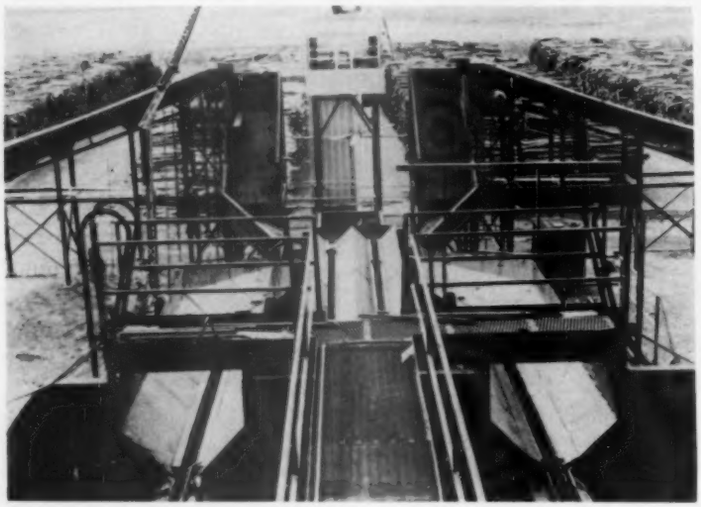
U.S.A., mill of Consolidated Water Power & Paper Co.

Summer Activities

While the wood-hauling operation is going full blast, other men are busy preparing for next year's operations. Camp No. 7 was readied during the winter for use by cutters this last summer. The Caterpillar D-8 was hard at work roughing out the location for new ice roads at the rate of 1,900 linear feet a day.

Divisional Supt. Melnychuk used equipment during summer-cutting operations to load and transport some of the wood as it is being cut. No attempt was made to get in a large percentage of the wood since the use of ice roads into the bush is impossible during the summer. However, even a small percentage hauled in during the summer takes the pressure off during the winter operation and permits use of equipment throughout the year.

In order to keep this fleet of equipment working steadily, Newaygo pays close attention to maintenance of its equipment. All equipment is either stored overnight in heated garages or kept warm with propane heaters. An excellent supply of parts is kept on hand for fast replacement when a unit breaks down. This program keeps the equipment working at top efficiency with a minimum of downtime.



Sorting Eliminates Jamming At Abitibi's New Hardboard Mill

A sorting arrangement (shown in picture above) in the log handling, barking and chipping system at the new Abitibi Corp. hardboard and insulation board mill at Alpena, Mich., is said by mill officials to eliminate the old bugaboo of log jamming and assure continuous flow of logs through the barking and chipping operation.

The 50 cord per hour system covers a distance of over 1300 feet and is operated by only five men. Actually, the system, from the woodyard to barkers, is double and starts conveing from opposite ends of the woodyard with two troughed single strand chain conveyors. These two conveyors carry the 8 ft. logs from the woodyard through the log wash, fall-out station, inspection station, and barking operation.

A feature of the Abitibi system is the fall-out station that automatically arranges the logs approaching the barkers into single file. This is accomplished by dropping excess logs off the main line conveyors onto recirculating conveyors. From here the dropped logs are fed back into the system assuring an uninterrupted flow to the barkers.

After the logs have been debarked, they emerge from the dual lines to a powered roller conveyor to be carried to the chipper. This conveyor has a holdback unit that prevents jamming in the chipper feed spout. Following chipping, the chips are carried on a covered trough belt conveyor to storage silos. From the chip storage silos, the chips can be delivered at a rate of 2,500 cu. ft. per hour on a system consisting of six belt conveyors to the pulp operation.

Abitibi's new hardboard mill will use upwards of 70,000 cords per year of both hard and soft growth woods.

Planet Corp., Lansing, Mich., built and installed the wood handling system.

Predict's Change In West's Methods of Logging

A. M. Brooks, timber mgr. of Ketchikan Pulp Co., Ketchikan, Alaska, anticipates a rather rapid change from A-frame logging to high-lead yarding and truck transport. He says this will become "almost universal as we get away from the beaches."

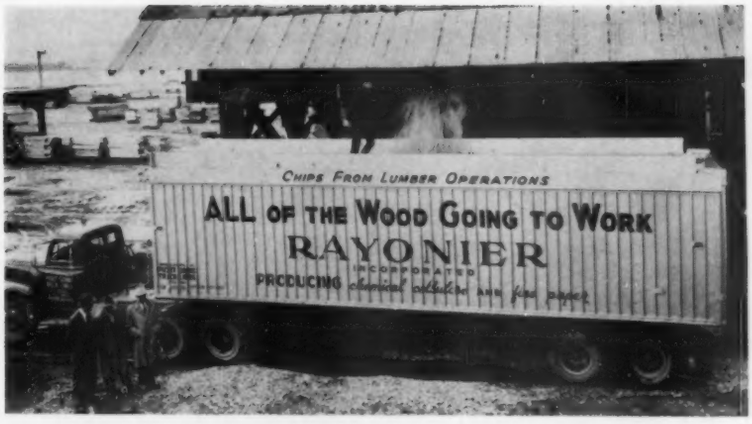
He expects some increase in tractor usage, for skidding direct to salt water and for swinging around Sitka and Juneau as these areas open up. He also anticipates an introduction of "some variety of rubber tired tractors very shortly," but as logging moves back from salt water the cable methods will assume increasing importance because of the steep, rocky and swampy terrain.

High Rates and Prices End Bozeman, Montana Exports

Due to the high freight rates existing from Montana and to increases in stumpage prices imposed by the U.S. Forest Service, three Wisconsin kraft mills have discontinued bringing pulpwood from the Bozeman-White Sulphur Springs area of the Treasure State. Freight rates on pulpwood have increased year to year.

The last shipments to Wisconsin were made in May 1958. The paper companies do not hold out much optimism for a resumption in future. The exports of Montana wood, mostly lodgepole pine, to Wisconsin reached sizable quantities in several postwar years. The Corcoran Pulpwood Co., Bozeman, Mont., did the cutting and shipping from points north and south of Bozeman.

Thilmany Pulp & Paper Co., however, is bringing in wood from West Yellowstone, Mont., which is in an extreme southern tip of Montana on the Idaho line, just west of Yellowstone Park. Charlie Ericson is contractor.



More Scenes Like This in Far West . . .

Four Mills Salvaging for Rayonier Chips

Blagen Mill—where above picture was taken—also barks and chips wood from other sawmills in vicinity.

. . . thus extending the supply of raw products for the Grays Harbor, Wash., mill of Rayonier Inc.

Chips equivalent to around 50 million bd. ft. annually are obtained from three tributary mills—Anderson-Middleton Lumber Co. in Aberdeen, Blagen Mill Co. and Grays Harbor Veneer Corp., both at Hoquiam. Chips are made from mill residues which have historically presented disposal problems.

Although large quantities of mill residues have been converted into hog fuel for industrial uses and home heating, processing the clean wood into pulp chips has advantages of higher utility, more consistent marketability, conserves natural resources and eliminates out-of-pocket disposal costs.

The Rayonier plant at Hoquiam is enhancing the util zation of miscellaneous wood throughout the tributary area by extending its facilities for processing and handling diverse types of pulpwood. To supplement its own chipping plant and chip dump for receiving purchased chips, the company is augmenting its processing facilities with a new wood plant. This includes installation of a drum barker for handling material as short as 18 inches.

How Sawmills are Serving . . .

Blagen Mill Co., which has its own hydraulic slab barker, not only cleans and converts left-over wood (hemlock and spruce) from its 250M per day sawmill into pulp chips, but also obtains slabs from other mills and processes them into clean chips. In addition this organization operates a drum barker and chipper to convert salvage logs into chips. The slab and round-log chipping systems are separate except they share the screening, bunker and loading facilities.

The Blagen organization also produces hog fuel which it sells to Rayonier.

Grays Harbor Veneer, a producer of hemlock and white fir fruit-vegetable covers, converts its scrap veneer into chips for Rayonier at a rate of around 30 units per day. Besides, it ships 60 cords of peeler cores per week to the pulp plant for conversion into chips.

The Anderson-Middleton mill operates two hydraulic barkers—a Hansel to process logs going to the main sawmill and a Bellingham type for logs entering the 8-ft. stud mill—so all the solid-type residues can be directly converted into pulp chips. These are produced at rate of 125-130 units daily and transported by high-pressure Rader Pneumatics system to either of two loading stations. One is for loading into truck-trailers, to take chips to the Hoquiam plant; the other loading into rail cars for delivery to Rayonier's Shelton mill. ●

Managers Urged to Act

Woodland managers are urged to induce small operators to use Station Paper 43 of Southeast Forest Experiment Station (Box 2570, Asheville, N.C.) providing a practical method whereby the operator can determine what net profit (or loss) he may obtain from logs of varying sizes.

Big Increase in Industry Planting in Southern States

The tree planting program of the pulp and paper industry in 11 Southern states during the 1957-8 season accounted for planting of almost 350,000,000 seedlings, an increase of 61,000,000 over the previous record, says Henry J. Malsberger, general mgr. of the Southern Pulpwood Conservation Assn. Nearly 50% of the total trees planted, or 163,000,000, were produced by the 18 industry-operated nurseries in the region.

In pointing out the increased tree planting activity of the industry, Mr. Malsberger revealed that in 1947 only 26,000,000 trees were planted in the South.

Private landowners in the South last season received 50,500,000 trees and during the past 11 years have received 352,500,000 seedlings from the industry.

The industry program accounted for the following number of trees planted in each of the states during the 1957-1958 season:

State	Trees Planted
Alabama	34,547,847
Arkansas	4,990,500
Florida	86,272,090
Georgia	80,390,540
Louisiana	18,382,644
Mississippi	23,762,200
North Carolina	24,614,955
South Carolina	25,115,050
Tennessee	8,744,500
Texas	25,472,762
Virginia	16,956,100
Total	**349,249,188**

Buying Wood by Weight Attracts Lake States Interest

Increased interest in weight scaling of pulpwood moved into the Lake States region in late September when this subject became a feature of the American Pulpwood Assn. technical committee meeting at Duluth, Minn.

Weight scaling is widely practiced in the South. The trend toward this system in Northeast states was reported last month in this PULPWOOD SECTION. At Duluth, E. C. Melcher, of S. D. Warren Co.; W. H. Hildebrand of The Mead Corp., and Donald Pierce of Superwood Corp., were on the program to different angles of the subject.

First weight scaling data for Mead was developed at Chillicothe, O., and later at its Tennessee mills. Mead has found that buying by weight greatly increases scaling speed and accuracy. In buying by weight, it pays a premium for well prepared wood and imposes a penalty for poorly prepared wood.

"Hot" Trees May Double Yield

First trees to have received planned injection with radioactive carbon have been felled. Initial results, proclaimed "highly successful" by Dr. R. L. Mitchell, manager of Rayonier's Eastern Research division at Whippany, N. J., indicate a "strong possibility" for higher future yields of cellulose per tree ("even doubling or tripling the current cellulose out per acre") plus improved cellulose quality for such large consumers as the rayon tire cord and cellophane industries. Attendant benefits such as better reactivity, greater production efficiency and lowered costs are also forecast.

Just a year ago at this research center, scientists using ordinary hypodermic syringes injected radioactive carbon (C 14) into young pine trees for the world's first controlled experiments in the study of cellulose growth in living trees.

Rayonier scientists have completed the dissection of one of the "hot" trees and have important studies already underway using the various tagged components from bark, lignin, cellulose and the hemi-celluloses.

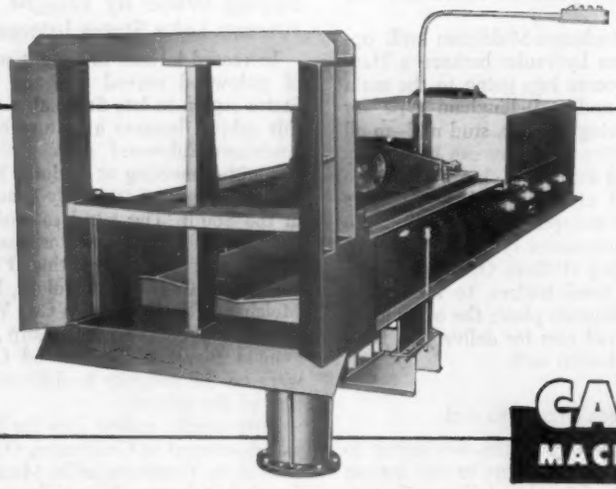
TWO YEAR OLD PINE injected with radio-active carbon

Dr. Mitchell revealed that cellulose in quality suitable for high tenacity rayon has been isolated from the radioactive portion of the tree for further laboratory investigation.

QUARTER LOGS WITH ONE STROKE

Carthage Hydraulic Splitter

Steel-Plate Enclosed, Push-Button Controlled



ONE stroke – not three – quarters the log and ejects it so that the Carthage Hydraulic Splitter is always clear for incoming logs. Three-axe head (splits in 1/6ths) also available. Heavy-duty construction. Steel-plate enclosed to protect working parts. Push-button-operated. Interlocking safety controls. Positive, safe, trouble-free operation. Range of sizes for logs to 38" dia. and 9' long. In successful operation since 1950.

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Manufacturers of Log Barkers, Log Splitters, Log Chippers, Slab Barkers, Slab Chippers, Chip Screens

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Canadian Province to Have "Tree Farms"

British Columbia is legally expected to adopt the term "Tree Farm" for future forest management licenses in an attempt to set the picture in the right light as to significance of these timber use grants.

The decision comes as the licenses are under increasing political fire, accentuated by a front page court case involving bribery accusations and other headline-grabbing sensations.

A small town editor in southwestern Washington state originated the term "Tree Farm" back in 1941, and it was adopted for the first one—a Weyerhaeuser "working" Tree Farm. The state-wide Tree Farm programs, sponsored by private industry, began in 1942 in Alabama with E. N. McCall, who died only recently, qualifying after examination by a board of private and public foresters. There are now 12,179 Tree Farms in 46 states of the U.S.A., totaling 46,216,669 acres. Definite standards are required to qualify.

Under the new legislature proposed in British Columbia, the term forest license would be abolished.

While present holders of licenses will not be affected, future "Tree Farms" in British Columbia will be created for 21-year terms, subject to renegotiation and renewal at termination of that period. Originally, licenses were granted "in perpetuity" and were the bases for extensive expansion of the pulp and paper industry in British Columbia.

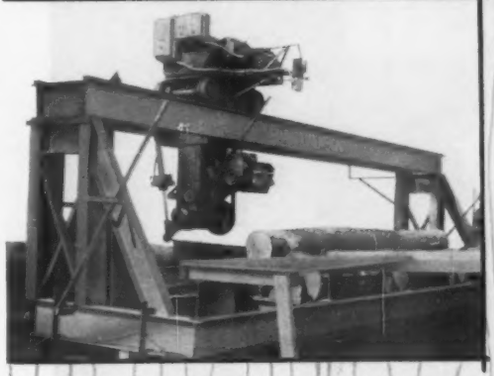
The new plan sets up a procedure to be followed in dealing with "Tree Farm" bids. After the application has been made and officially advertised, Gordon Sloan, newly appointed advisor to the government, holds public inquiries to hear evidence on which he is to base his recommendation to the government. The government will approve or refuse the application.

Swiss Logging Method Being Moved To Idaho

The Swiss Weissen high lead logging set-up, in use for three years near Twisp, Wash., to log steep slopes, has been moved to Diamond-Gardner Corp. property in northern Idaho.

Perfected by a Swiss firm, the arrangement relies on gravity as a source of power in moving logs onto the loading deck by overhead cables. It has also been on trial in northern New York.

. . . turn wood waste into profit



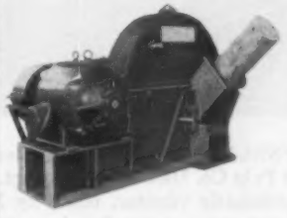
Jackson Log Barker . . .

The Jackson BEAVER log barker is designed for economical use at saw mills cutting as little as 7M board feet a day. However, in tests, this barker has cleaned logs at the rate of 18M feet a day, Doyle Scale. Elimination of fast wearing parts is a feature giving low maintenance cost.

with

Jackson

WASTE UTILIZATION EQUIPMENT



Model CP 51 Chipper . . .

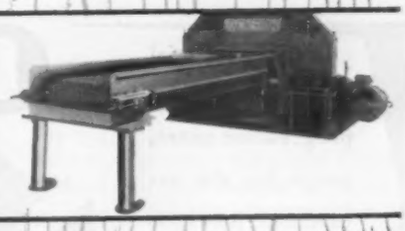
Jackson's all-welded steel Core Chipper handles round cores and pulpwood up to 11 inches. Also available is Model SE 48 for slabs and edgings to 15 inches horizontally fed.

Chip Screen . . .

Jackson's all-steel chip screen's four-bearing mounting and combination decks assure extra years of service. Jackson chip screens are available in various sizes to suit any type operation.

Veneer Chipper . . .

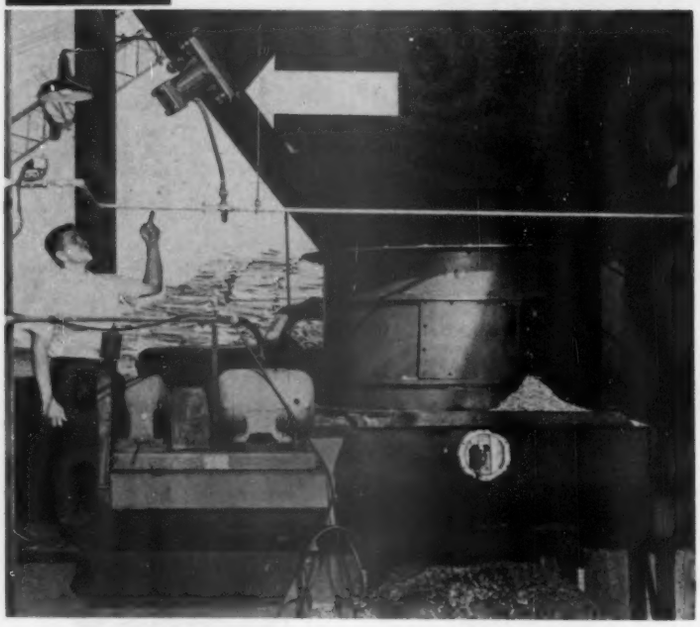
Jackson's all-steel veneer chipper produces chips of ideal size for paper mill and hardboard requirements. Jackson's superior construction means long life at low maintenance cost.



JACKSON INDUSTRIES INCORPORATED

VENEER MACHINES DIVISION

Birmingham, Alabama



PNEUMATIC VIBRATOR solves frozen chip problem at Green Bay Paper & Pulp Co. Here Pulp Mill Supt. Bill Nichols points to BH-4 in. long stroke pneumatic vibrator, made by National Air Vibrator Co., Cleveland, O. Long piston stroke dislodges arched chips by transmitting vibrations right through heavy bin planking or steel plate. Since the piston is the only moving part, the unit is practically maintenance free.

How to Move Frozen Chips

During winter months temperatures in chip storage bins at Green Bay Paper & Pulp Co., Green Bay, Wis., drop as low as 25 degrees below zero, creating a problem in moving frozen chips from bins to digesters. In warm weather a screw feed conveyor takes 20 minutes to fill a digester with 21 tons of chips, but Pulp Mill Supt. Bill Nichols found it impossible to maintain this filling time when the mercury dropped.

Occasionally two men with sledge hammers were stationed on a specially built platform, one man on each side of the bin. By continuously pounding the bin they maintained a fairly satisfactory chip flow, but this was hard on the bin structures, work stoppages resulted, and labor costs zoomed.

Finally Mr. Nichols had two pneumatic vibrator units mounted on either side of each bin about six feet up from the discharge opening. One solenoid valve per pair provides automatic control and one automatic lubricator per pair, using kerosene to keep air lines from freezing, was also installed. Mr. Nichols says they are now able to keep a full load of chips coming at all times, meeting the 20-minute filling time.

Mississippi Grows More Pine Than Is Being Cut

Mississippi forests are now growing more pine but less hardwood than is being cut, according to a new survey of the State's forest resources, says the U.S. Forest Experiment Station in New Orleans. But because many timber stands are not fully stocked, growth is only about half the potential.

Net annual growth of sawtimber is 1.3 billion bd. ft. of softwood and 0.8 billion of hardwood. In 1956, when the latest cutting statistics were compiled, logging removed 0.7 billion bd. ft. of softwood and 1.0 billion of hardwood.

Forests cover 17 million acres of the State's total land area of 30 million acres, the survey found. This is 4% more forest land than there was in 1948, when the previous inventory was completed. Increase in softwood is attributed to stepped up management programs.

Mississippi's timber supply in sound, well-formed trees at least 5 in. in diameter totals 7.6 billion cu. ft. Softwood volume has increased 8% Hardwood has declined 21%.

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Russia Reveals Woods Progress

Forestry areas of the Soviet Union cover about 1,700,000 acres and depleted sections have been regenerated at the rate of 1,750,000 acres a year in recent years, according to P. V. Vasiliev, Deputy Director of the Forestry Institute of the Soviet Academy of Sciences. As a comparison, U.S.A. forests total 785,000,000 acres, including Alaska.

Mr. Vasiliev reviewed developments over the last 40 years in Unasylva, the forestry publication of the UN Food and Agriculture Organization.

"Income from forestry amounts to more than 1,000,000,000 rubles a year ($250,000,000 at the official rate of exchange)," the Soviet official said. "The income does not cover by-products supplied free of charge, or pelts, which in some years have provided the country with up to 15% of its total foreign exchange.

"Forestry, lumbering and the wood treatment and processing industries employ 3,100,000 workers, or 6% of the working force of 52,000,000 in the Soviet Union," the article declared. Some 2,000,000 are engaged in lumbering, 500,000 in forestry and the rest in processing.

"The last four decades have brought extensive improvements in the production and handling of forest resources and output," Mr. Vasiliev declared. The extent of these resources had been considerably underestimated, both under the Czarist regime and that of the Soviet, until the Nineteen Thirties. Revised inventories have correct—this data and more efficient methods have halted an intensive process of forest destruction that had been going on for two centuries.

"The bulk of the forested lands is still in the Northern and Asiatic parts of the country, remote from the centers of economic life," the official said. Efforts to supply the central provinces and the sparsely wooded regions of the south with timber are being extended by rail, over great distances. Average transport distances have lengthened from 415 kilometers (258 miles) in 1913 to 1,293 kilometers (803 miles) in 1956, leading to an economically unjustified rise in timber prices at the place of consumption.

Urgent Problem

"From this situation," he said, "a problem arising with great urgency has been that of increasing considerably the forest stock of the west and south, and in the central provinces. Afforestation of all suitable unproductive land of the Soviet forest reserves is envisioned.

"In Czarist Russia only two university-level institutions trained foresters, whereas at present there are eleven university-level specialized forestry institutions and several schools of forestry in the universities as well as in polytechnic and agricultural institutes. There are also twenty-six secondary technical schools of forestry and nineteen that give one-year courses.

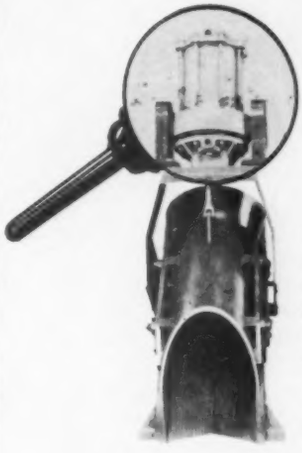
"More than 12,000 engineers, 22,000 technicians and 45,000 junior foresters hold responsible positions," he said, "and under a recent ruling technician-foresters with specialized training are to be appointed in place of forest rangers."

Taylor Machine Works Will Distribute Hosmer L-20 Log Bar

Taylor Machine Works, Louisville, Miss., pulpwood and log tool manufacturer, has been appointed Southern distributor for the Hosmer L-20 Log Barker, built by Hosmer Machine and Lumber Co., Contoocook, N. H.

Jam it-Free it!

turn of an air valve frees log jams



MURCO "V" TYPE CHIPPER SPOUT

WITH PNEUMATIC CYLINDER OPERATED COVER

NO SPOUT PLUGGING. Jam-ups eliminated by use of specially designed hinged cover on new MURCO V-Type Spout . . . hinged cover is operated by a double acting pneumatic cylinder with valve located convenient to chipper operator. Air operated cylinder lifts spout cover vertically approximately 2¾" to free jammed logs—saves time . . . eliminates accident hazards . . . safer to operate.

OPERATED FROM NORMAL AIR SUPPLY. Air cylinder operates at pressures from 50 to 100 lbs. per square inch.

Shown here is spout cover raised vertically approximately 2¾".

"V" TYPE SPOUT

V-TYPE SPOUT HOLDS WOOD FIRMLY. Holds any size stick firmly because of specially designed V-shape. Wood moves in a straight line with no side movement to disturb cutting. Sawdust reduced to a minimum; and chip quality improved.

HEAVY DUTY DESIGN FABRICATED STEEL . . . Bed knives arranged for easy removal. Spout bed knives are precisely positioned in relation to disc knives resulting in a shearing action, producing quality chips, yet eliminating splinters and sawdust.

Write today for complete details . . . specify make and size chipper on which MURCO V-Type Chipper Spout with pneumatic cylinder operated cover is to be used.

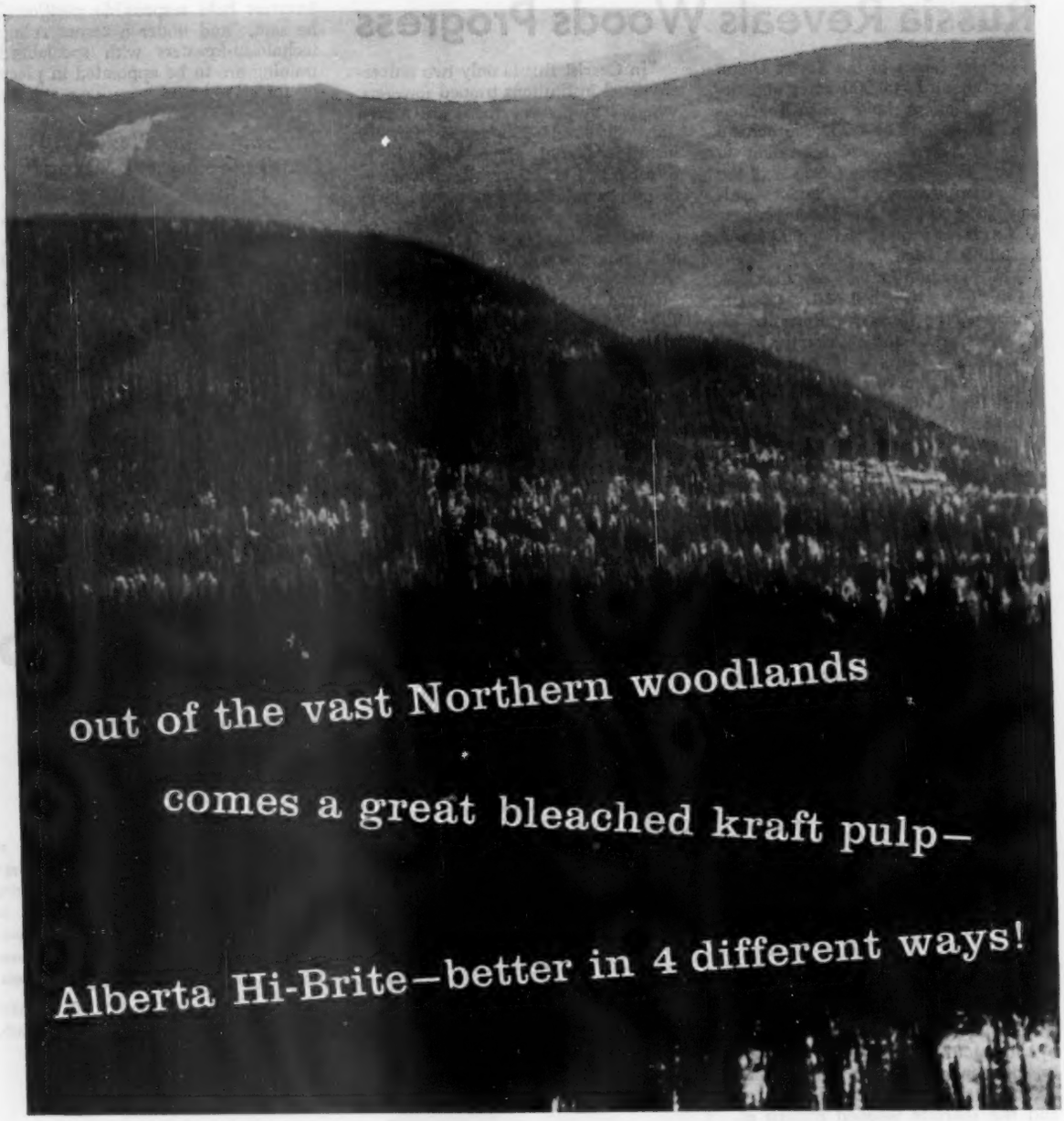
CAN BE INSTALLED ON ANY MAKE OF PULPWOOD CHIPPER

MURCO

75 YEARS

D. J. MURRAY MANUFACTURING CO.

MANUFACTURERS SINCE 1883 WAUSAU • WIS



1 Alberta Hi-Brite is made from the long thin fibers of spruce and lodgepole pine . . . fibers famous for producing the best quality bleached kraft pulp. It imparts to your paper an unusually high degree of *folding and tensile strength* along with outstanding opacity and cleanliness.

2 Alberta Hi-Brite is the one bleached kraft pulp which not only gives your paper strength, but also formation and printability —qualities usually associated *only* with low strength pulps.

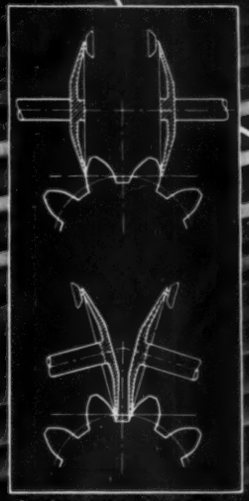
3 The new multi-stage chlorine dioxide bleaching process, exclusive to Alberta Hi-Brite, provides your pulp with whiteness and brightness suitable for producing even the finest writing papers.

4 And most important—Alberta Hi-Brite has the unique ability to develop good characteristics *whether the paper you produce calls for light or extensive refining.*

For full details on how Alberta Hi-Brite can improve your product, write Dept. PP-1058, St. Regis Paper Company, 150 East 42nd Street, New York 17, N. Y.

St.Regis PAPER COMPANY
150 EAST 42ND STREET, NEW YORK 17, N. Y.
PULP PAPER PACKAGING PLASTICS

NOW—PRECISION GEAR GRINDING *at* phillie gear



Single point grinding method eliminates burning or cracking of tooth surface.

...assures the ultimate in hardened gear accuracy, practically silent operation

Long years of experience have clearly shown that ground tooth gears can transmit higher loads than gears manufactured by conventional methods. Precision gearing properly hardened and ground can be reduced 60% in size, while service life is increased.

Phillie Gear has now installed the latest gear grinding equipment for spur and helical gearing up to 70" diameter, with tip root relief and crowning available. Similarly, spiral bevel, zerol, and hypoid gearing can be precision ground up to 17½" diameter.

For an engineered recommendation, send your precision gearing problems to . . .

PHILADELPHIA GEAR CORPORATION

phillie gear®

PHILADELPHIA GEAR CORPORATION

ERIE AVE. & G STREET, PHILADELPHIA 34, PENNA.

Offices in all Principal Cities

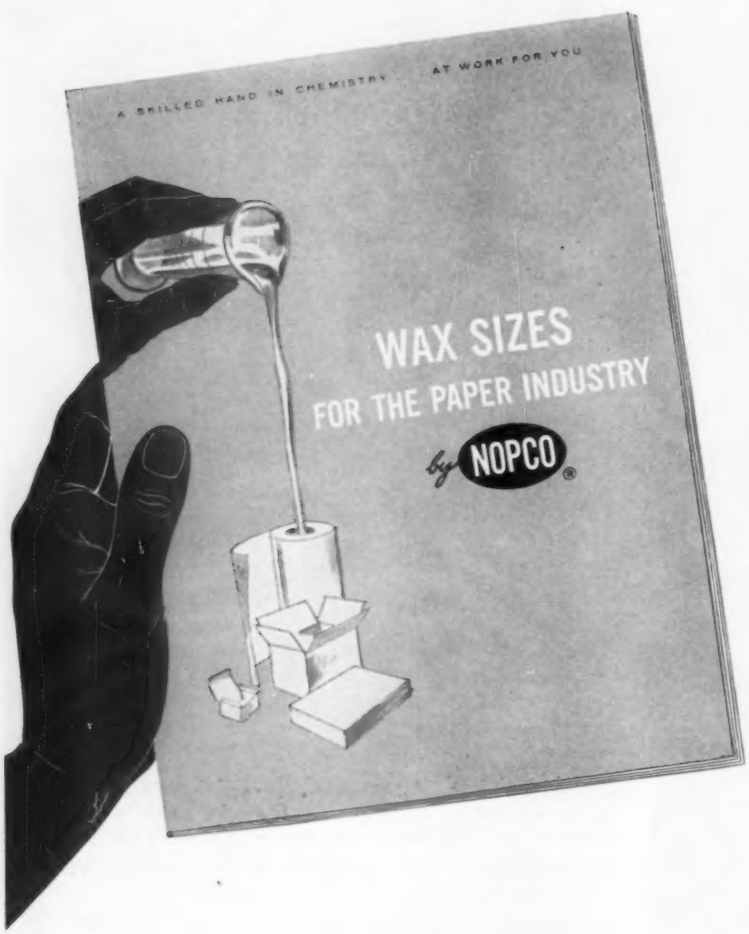
INDUSTRIAL GEARS & SPEED REDUCERS • LIMITORQUE VALVE CONTROLS • FLUID MIXERS • FLEXIBLE COUPLINGS

Virginia Gear & Machine Corp. • Lynchburg, Va.

For any size problem

NOPCO WAX SIZES

are your best answer



Whatever type of paper, paperboard or fiberboard you produce, your sizing problems can be lessened by use of a Nopco-developed wax size.

Nopco wax sizes—the result of long and tireless research—assure positive wax retention on the fibers, thorough and even wax distribution through the sheet, high efficiency at low cost. As many as 21 different formulations are available to give your product any combination of properties needed.

For complete information about Nopco wax sizes, write for your copy of "Wax Sizes for the Paper Industry." Nopco Chemical Company, 60 Park Place, Newark, N.J.

NOPCO®

VITAL INGREDIENTS FOR VITAL INDUSTRIES

Plants: Harrison, N.J. • Richmond, Calif. • Cedartown, Ga. • London, Canada

Strictly Personal

South

Memo from WFD

The Southern Exposure: GEO. W. MCCLEARY is new sales mgr. of Ecusta Paper Div. of Olin Mathieson. MILLARD C. TEAGUE is new mgr. of fine paper sales for the Ecusta Paper Div., announces Director of Sales and Marketing W. E. ZIMMERMAN. Mr. Teague will devote special attention to activities growing out of cooperative work between sales and research. . . .

VERNON KNIGHT, well-known representative in the South for Eastwood-Neally, has resigned. Vernon will spend his time at his home in Mobile. . . .

The city of Crossett, Ark., home of Crossett Paper Mills, will soon be the owner of a $45,000 municipal baseball park, a gift of Mrs. ELISABETH R. CROSSETT, widow of the late EDWARD C. CROSSETT, onetime chairman of the board of The Crossett Co. . . . T. M. PHILLIPS has ben promoted to admin. asst. to Crossett Mgr. JIM HAIR. . . .

Quick quips: Crossett's *Forest Echoes* comments that hospitals are places where people who are run down wind up . . . and the awkward age is when we are too old for income tax exemption and too young for old age pension. . . .

North Carolina State College announces 55 scholarships totaling $91,550 for the coming year, a gift from the industry-sponsored Pulp and Paper Foundation, Inc. . . .

At the suggestion of NELSON COX, director of Arkansas Game and Fish Commission, International Paper Co.'s new fresh water reservoir in Lafayette County, Arkansas, has been named Lake Erling, in honor of ERLING RIIS, vice pres. and gen. mgr. of I.P.'s Southern Kraft Div. Company will build recreational areas on its shores. . . . EDWIN V. TAYLOR, southeastern sales mgr. of Stone Container Corp.'s Mobile div. and a lt. col. in the Alabama National Guard, recently was awarded Mississippi's Magnolia Medal and Alabama's Certificate of Achievement. . . .

S. WALLACE BOOZER, graduate of the U. of Texas and onetime financial analyst for Sylvania Electric Products, has joined the administrative service staff of West Virginia Pulp and Paper Co. at Covington, Va. . . . also at Covington, JOHN PROCTOR has been appointed asst. training dir. . . .

The 555 employes of the Buckeye Cellulose Corp.'s Memphis mill recently rang up more than 3,184,000 consecutive manhours of operations without a lost-time injury. . . .

EMORY CLEMENTS, supt. of engineering operations at Gulf States, and D. L. HERRIEN and JAMES ERNEST LANKFORD, both engineering foremen, recently celebrated their 25th anniversaries with the company. . . . KEN JOHNSON, who joined Gulf States Paper Corp. in May as an E-Z Opener dist. sales mgr., died in a tragic drowning accident. JOSEPH H. KUHNS is new admin. eng. in the mfg. div. at Gulf States. He had been chief eng. of Wausau Paper Mills Co., Brokaw, Wis. WILLIAM E. FORMAN joined Gulf States' mfg. system design dept. He is a graduate of Georgia Tech. . . .

JAMES W. DANIEL joins Crown Zellerbach as yard supt. at St. Francisville, and FRANCIS A. THIBODEAUX as accountant there. . . . P. J. MCNEE JR. of Waco, Tex., is now representing the Appleton Machine Co. in the south central states (Tex., Ark., La., Okla. and N. Mex.). . . . JAMES H CHAMBERS was transferred to Reliance Electric & Engineering Co.'s Atlanta sales office. MELVIN H. HARE goes to Reliance's Greenville, S. C. sales office. . . .

JAMES L. COKER, president of Sonoco Products Co., was awarded an honorary degree of doctor of industries at Clemson College and CHARLES W. COKER, executive v.p., received an honorary doctor of laws degree from the University of South Carolina the day before

NORMAN W. WILSON, chairman of the board, Hammermill Paper Co., received an honorary degree (doctor of law) from Lawrence College. . . . JACK W. HARTUNG is now director of purchases for St. Regis Paper Co. . . . DR. PETER L. SHANTA, previously research coordinator at The Carborundum Co., has joined Taylor Fibre Co. as technical director. He succeeds DR. C. N. JACOBS, who retires at year end. . . . WALTER J. BEASTEN, N.Y. district sales mgr. for DuPont's pigments dept., is now asst. sales director. H. KENNETH CARTER, moves up as N.Y. district manager. . . .

EDWARD F. GOLDMEYER, recently from International Paper's northern div., has been named asst. to mill mgr. at IP's

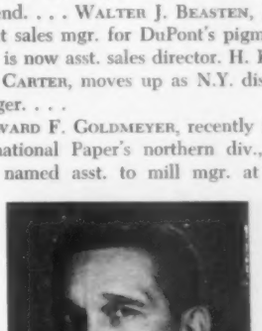
George Hardaker Honored

. . . by official approval as first president of a new Southern and Southeastern salesmen's organization at its initial meeting in Atlanta. Mr. Hardaker is Southeastern sales rep for Lockport Felt Co. Still to be approved is the official name of the group, formed last fall at the Southern and Southeastern Supts. convention in Jacksonville. Tentative title: Salesmen's Society to Dixie Pulp and Paper Mills. To date 114 Southern salesmen have joined.

Ainsworth . . . . . Natwick . . . . . Navarre

First Wood For Noralyn Mill

Three vice presidents of Noralyn Paper Mills Inc., J. W. Natwick, A. J. Navarre and J. H. Ainsworth, check first wood cut for mill to be built near Baton Rouge, La. Several truckloads of Louisiana swampland hardwoods were shipped to a Southern research institute for four weeks of trial runs in making newsprint.



Erhard Karl Heads I.P. Purchases

Mr. Karl moves from Mobile, Ala., to New York as new director of purchases for International Paper Co., announces S. E. KAY, vice president. He also announced that EARLE WEAVER, manager of Northern Div. Purchasing Dept., is retiring after 44 years service. He will be succeeded by ROBERT E. CROCKETT, effective Dec. 31.

Mr. Karl, born in Mobile, Ala., joined I.P. in 1935 as a laboratory tester at the Mobile mill. In 1937 he became a purchasing clerk and six years later purchasing agent for the Southern Kraft Div., which position he held until his present appointment.

Dictionary of Pulp and Papermaking Terms

By Curtis L. Brown

Adhesive bond—Matrimony
Bagasse—Beast of burden
Clean blow—K.O.
Dirty blow—Below the belt
Fehling solution—Below 70 on the finals
High density—Low I.Q.
Laundry finish—Torn shirt
Specifications—"He must be handsome, rich, smart, wealthy, considerate, rich, athletic, wealthy . . ."

Moss Point mill and OLIN JOHNSON, one-time const. super. at IP's Natchez mill is now asst. UM&E super. there. . . . PAT YUNKER, Atlanta rep for E. D. Jones and Sons, recuperated okay after a minor operation.

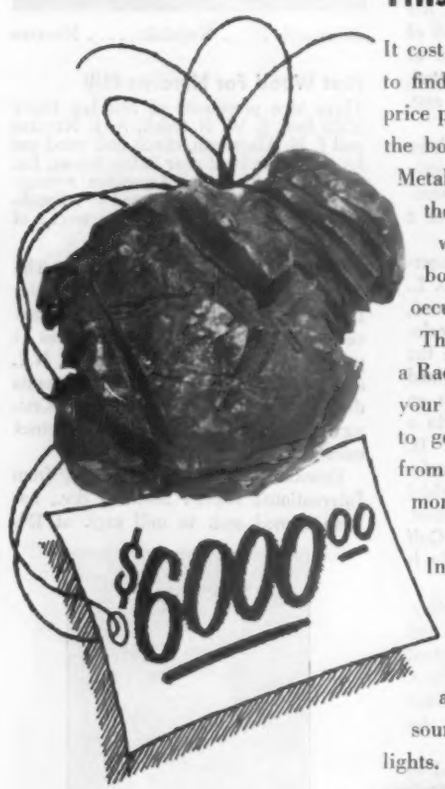
ELLIS O. BARNES, supt. of chem. products at Union Bag-Camp Paper Corp.'s Savannah, Ga., plant, has been named mgr. of mfg. and research of a new chem. products div. at Savannah. . . . R. RALPH STREETY, supt. of steam and power, Bowaters Southern Paper Corp., Calhoun, Tenn., was awarded $200 for his essay in the 11th Bolton Award contest. . . .

Final note: We recently overheard that it takes only a little jack to lift a car—but a lot of it to keep it up.

Fred Adams, Valdosta Asst. Mgr.

Promotions of three engineers in the Owens-Illinois Glass Co's Mill Division have been announced by Fred B. Schelhorn, vice president for manufacturing. FREDERICK A. ADAMS, for past year division engineer at Owens-Illinois headquarters, Toledo, O., becomes asst. plant mgr. of O-I's pulp and paper mill at Valdosta, Ga. He is succeeded as division engineer by GLENN RALSTON, formerly assigned to the Division's Central Laboratory in Toledo. GEORGE R. ZALOUDEK, plant engineer at Valdosta, moves to Toledo as project engineer. Mr. Adams, native of Birmingham, Ala., was electrical engineer at Voldosta before coming to Toledo. Mr. Ralston, from Maumee, O., formerly served as gen. supt. and project engineer at Valdosta. Mr. Zaloudek of Medina, Wash., near Seattle, joined the company in 1955 as asst. plant engineer at Valdosta.

This bolt cost $6000!



It cost a Northwestern sawmill $6,000 to find this bolt—too late! That's the price paid to repair their chipper after the bolt went through. Had a Rader Metal Detector been in operation at the plant, the conveyor and chipper would have been halted and the bolt removed before the damage occurred.

Think what inexpensive insurance a Rader Metal Detector would be for your plant. The prevention of damage to gears, teeth, blades, and knives from one or two pieces of metal could more than pay for the detector.

Designed and manufactured by Industrial Electronics, Co., Chehalis, Washington, for Rader, it will detect nonmagnetic as well as magnetic metal and actuate any circuit to stop chippers, sound alarms, or flash warning lights.

Write for complete information, today!

RADER PNEUMATICS, INC.

1739 N.E. 42nd Ave., Portland 13, Oregon
4645 Main St., Vancouver, B. C.
Preston, Ont., Canada
Box 61, Eureka, Cal.
Room 716, No. 10 High St., Boston, Mass.
Box 3386, Memphis 17, Tenn.
Box 55, Lockport, Illinois

Midwest

Memo from DGC

HUBERT JOHNSON is new purchasing agent for the domestic purchasing dept., Container Corp. of America, Chicago, according to NORMAN C. MYERS, director of purchases. Mr. Johnson is a graduate of the U. of Illinois and joined CCA in 1954 . . . EDGAR A. LAURING was promoted to a new post as asst. research laboratory mgr. for Minnesota and Ontario Paper Co., International Falls, Minn. He will continue to direct the program of the Insulite products and will assist the manager in other phases . . .

L. J. LONG, exec. vice pres. and director of The Crystal Tissue Co., Middletown, O., retires from active management. He continues as a director and will also serve as consultant to management. Mr. Long started with Crystal in 1920 as storekeeper and inventory clerk . . . PETER J. NELSON was appointed mgr. of the sales service dept., The Northwest Paper Co., Cloquet, Minn. PHILIP W. BUDD becomes mgr. of the finishing and shipping dept . . . RICHARD A. CHRISTMAN is transferred to the Cincinnati, O., sales office of Reliance Electric & Engineering Co. MERLE M. MORROW moves to the St. Louis office . . .

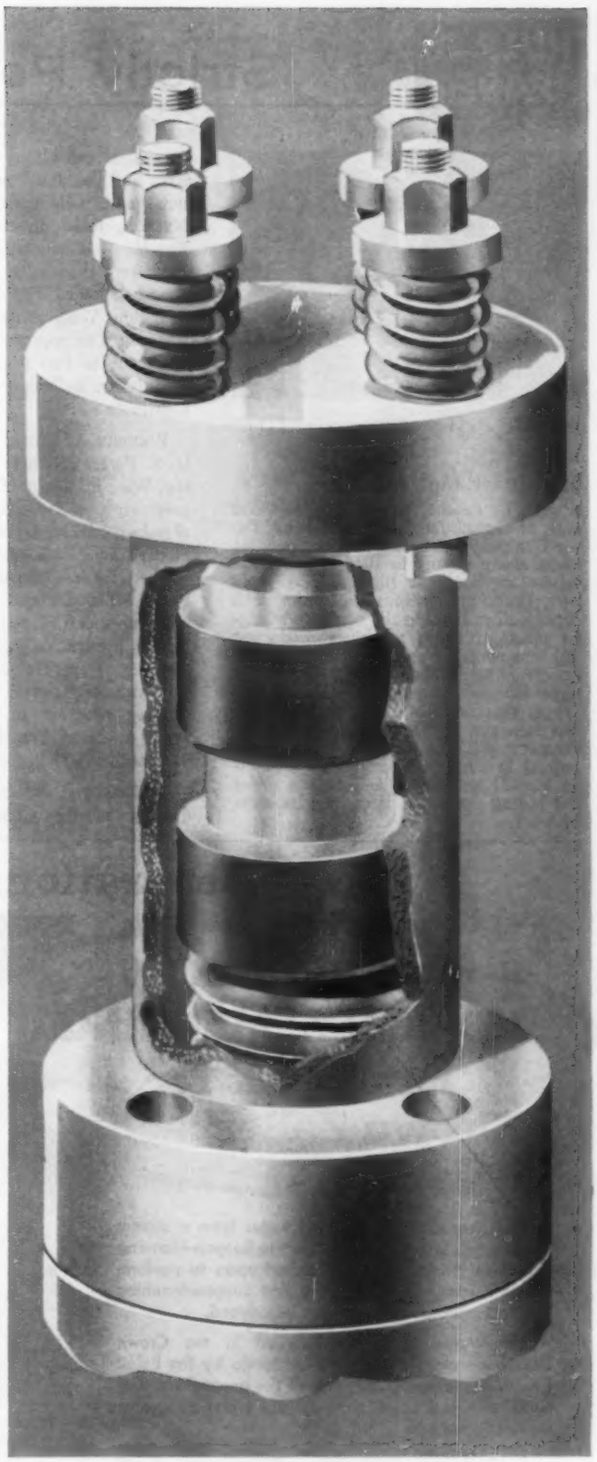
DR. JOHN FANSELOW has been engaged by Allied Paper Corp., Kalamazoo, Mich.,

NOW KOPPERS LEADS AGAIN

by bringing you lower precipitator maintenance and operating costs with

K-30*

bonded pistons on pneumatic vibrators



By eliminating the need for lubrication of the rapping mechanism in electrostatic precipitators, Koppers saves you many operational man-hours and maintenance costs.

This lubrication-free operation results from bonding a new wear-resistant material to vibrator piston surfaces. This special self-lubricating compound, identified by Koppers as "K-30," is composed of Teflon† and other wear-resistant materials that together provide a self-lubricated surface.

Most rapping mechanisms demand regular maintenance to be trouble-free, but "K-30" eliminates this need and provides more reliable operation.

Koppers research, backed by many years of experience in the electrostatic precipitation field will help you find the answer to your gas cleaning problems. Check with Koppers to learn how "K-30" can develop top efficiency in present or planned precipitator installations. For more information, write: KOPPERS COMPANY, INC., 9610 Scott Street, Baltimore 3, Maryland.

*Koppers Trademark

†E. I. duPont de Nemours & Company, Inc. trademark for tetrafluoroethylene resin

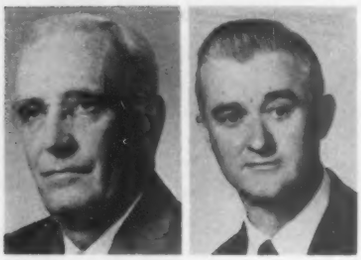
KOPPERS

ELECTROSTATIC PRECIPITATORS

Engineered Products Sold with *Service*

PULP & PAPER

Strictly Personal



Beadle ..... Mader

Bob Mader, Mgr. at Biron

Warren E. Beadle, Biron, Wis., Division Mgr. of Consolidated Water Power & Paper Company since 1936, has retired. He joined the company in 1914 and became master mechanic at Biron a few years later. Under him, Biron grew from a small paper mill to become the company's largest plant with five machines producing 500 tons of paper and paperboard a day. Robert J. Mader has been appointed to Biron Division manager, and Kenneth K. Kruger succeeded Mr. Mader as production manager. Mr. Mader began his employment with the company in 1933. He worked in various capacities at Wisconsin Rapids and Biron and in the order and billing dept. and later in sales service work.

as special consultant on technical problems and the development of new products, and will work with HARLEY E. NELSON, tech. director for Allied. Dr. Fanselow is an instructor at Western Michigan University . . . RICHARD F. BELLACK joined Fox River Paper Corp., Appleton, Wis., as director of marketing research. The program is expected to take from one to two years and when completed Mr. Bellack expects to return to California . . .

WARREN A. CHILSON joins the staff of U. S. Forest Products Laboratory, Madison, Wis., in charge of its research in papermaking, wallboard and physical testing of pulp products. A graduate chemical engineer from Northeastern U., Mr. Chilson worked for Cellufoam Corp., Northern Paper Mills, Curlator Corp., and Champion Paper and Fibre Corp. Most recently he was production mgr. of Chemical Paper Mfg. Corp., Holyoke, Mass. . . . BEN J. VANDEN HEUVEL joins the admin. training program of Appleton Woolen Mills, Appleton, Wis. He is a graduate of St. Nordbert's College, De Pere, Wis. . . .

W. PHALTI LAWRENCE is promoted to director of the Champion Paper and

Claude Bos, Bryant Coating Mgr.

The Bryant mill is a div. of Allied Paper Corp. He reports directly to Vice Pres. JAMES H. MCCLURE. Creation of the new position is a further step in decentralization. Mr. Bos has been in the paper industry about 25 years.

Fibre Co.'s gen. research and development div., succeeding W. J. MONTGOMERY who retires after 31 years with the company. Other Champion appointments: W. P. TAYLOR, asst. director of research and development; MALCOLM G. LYON, assoc. director of research and development; ROBERT FORREST, mgr. of engineering research and development; JOHN R. DAM, mgr. of papermaking research and development; and ROGER WARNER, asst. mgr. of engineering research and development . . . PATRICK J. HASSETT was named asst. supt. of the kraft mill of Nekoosa-Edwards Paper Co.,

If Water Separation is *Your* Problem—

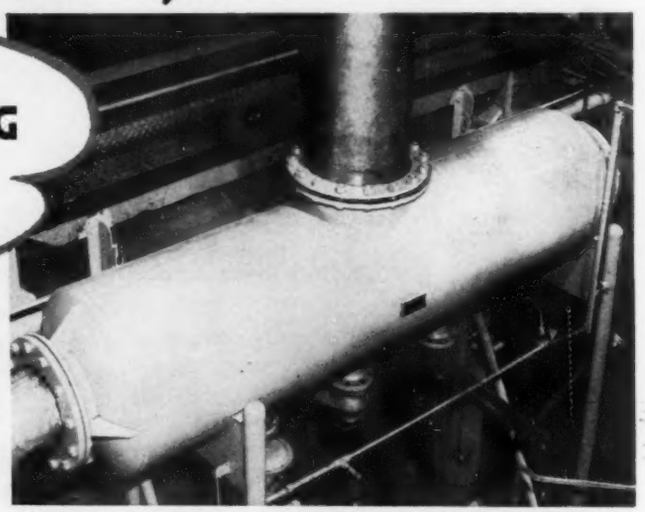
SEE HOW BURGESS-MANNING handles it for Crown Zellerbach!

The separation of entrained water from a stream of air or gas is a familiar problem to Burgess-Manning engineers. They have been called upon to perform this task many times since the first Burgess-Manning Water Separator Snubber was introduced.

The Water Separator installed in the Crown Zellerbach plant at Antioch, California by the Beloit Iron Works is typical. Because of the unusual requirements of this installation a special water separator was designed and built.

A horizontal installation, between the Mold-Yankee paper machine and a centrifugal exhauster, was required, with a 14" inlet at each end and a center 18" outlet. The capacity is 6500 CFM, and entrained water from the water seal is entirely removed.

In many Burgess-Manning Water Separation installations, unlike this one, exhaust silencing is also an important function.



Burgess-Manning Water Separator especially designed for horizontal installation and use with Mold-Yankee machine at Crown Zellerbach California plant.

If water separation or exhaust silencing is a problem, consult Burgess-Manning!

Sound Engineering

BURGESS-MANNING COMPANY

Industrial Silencer Division

9223 Sovereign Row, Dallas 35, Texas
Libertyville, Illinois

Port Edwards, Wis. A chem. eng. graduate of the U. of Wisconsin, Mr. Hassett joined Nepco in 1953 . . .

Wisconsin friends of CAPT. P. R. O'MALLEY and his wife (former GERTRUDE McMAHON) learn that their little family at 437 Lebanon Drive, Falls Church, Va., has grown to four now. Mrs. O'Malley was former secretary to Westbrook Steele, former president of the Institute of Paper Chemistry, and her late father, MIKE McMAHON, was widely known Appleton Woolen felts rep. Her mother, MARY McMAHON, of Appleton, recently visited relatives in California. . . .

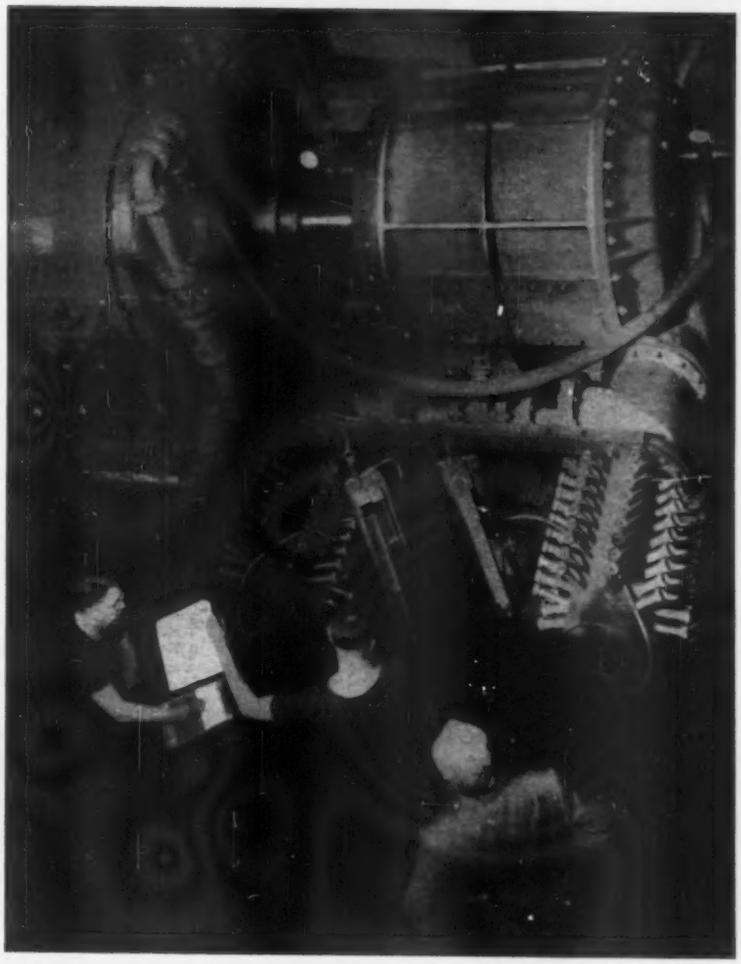
GEORGE H. RASMUSSEN joins the tech. dept. of Consolidated Water Power & Paper Co. as a trainee. He recently graduated from the U. of Wisconsin. ROBERT J. KESTER was promoted to tour foreman. JAMES G. GELDER was appointed marketing mgr. of the electronics div., Diamond Power Specialty Corp., Lancaster, O. He was formerly sales mgr.—process control systems for Philco Corp.'s government and industrial div. in Philadelphia. . . . JAMES D. MIXON is now field service engineer at the Beckman/Process Instruments div. office in Chicago, Ill. . . . JOHN N. BROWN, formerly of the Swenson Evaporator Co., div. of Whiting Corp., Harvey, Ill., is transferred to the company's district office in Chicago, Ill. at 33 S. Clark St. HARVEY K. WATERS moves from the firm's Charleston, N.C. district office, to mgr. of a new district office at 5009A, Excelsior Blvd., Minneapolis, Minn. . . . GEORGE H. CARLEU joins the Chicago sales office of the pigments div., American Cyanamid Co. . . .

Scheid Burdell McKinney

Watervliet Promotes Three

LOUIS J. SCHEID was promoted from chief eng. to dir. of mfg. for Watervliet Paper Co., Watervliet, Mich., subsidiary of Hammermill Paper Co., Erie, Pa. CARL L. BURDELL was appointed chief engr. and DEAN D. McKINNEY, personnel mgr. Mr. Scheid graduated from Michigan State U. in 1932 and joined Watervliet in 1934. Mr. Burdell, formerly staff eng. for Allied Paper Corp., Kalamazoo, came with Watervliet July 1. He earned his m.e. at Tri-State College, Angola, Ind. Mr. McKinney has been in the industrial relations dept. of Hammermill for the past 11 years and as personnel mgr. succeeds T. J. SCHEID who, in his 43rd year of service with Watervliet, is retiring.

Rated performance of every Nash Vacuum Pump is assured by this precise laboratory test



Rated capacities of Nash Vacuum Pumps are not theoretical. Every Nash Pump is tested individually. Air capacity is determined by delivery thru accurately machined and calibrated orifices. Related vacuum is measured by precise mercury column, and horse power is recorded electro-dynamically. Records of these tests are retained by us, and certified copies are available to Nash Pump owners.

That is one of the reasons why Nash Vacuum Pumps are installed in over a thousand leading Paper Mills. An engineer from Nash will be glad to survey your mill, and make recommendations, entirely without obligation to you.

NASH ENGINEERING COMPANY

440 WILSON ROAD, SO. NORWALK, CONN.

Weyerhaeuser Names Pulp Regional Sales Mgrs.

L. K. LARSON, sales manager of Weyerhaeuser Timber Company's Pulp Division, announces appointments of ROBERT L. NASH as manager of Eastern pulp sales; SPENCER M. SMITH, as manager of Midwest pulp sales; and ROGER N. WIEWEL, as manager of New England pulp sales.

Mr. Nash joined the company's Pulp Division at Everett, Wash. in 1943, entered sales in Chicago in 1946 and moved to New York in 1949.

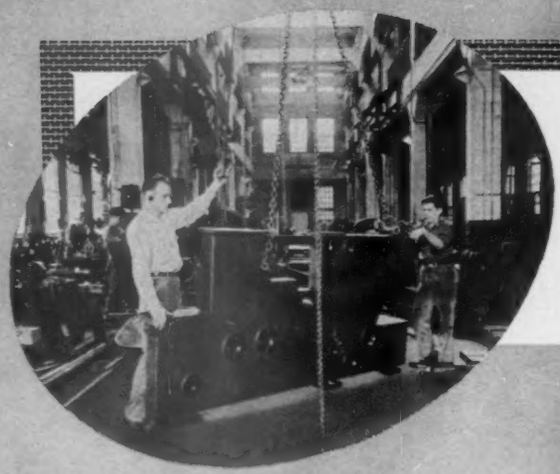
Mr. Smith worked in 1947 for W. J. Park and Sons, contractors who built Weyerhaeuser's Springfield, Ore., mill. He joined the Pulp Division in 1948, working at Springfield and Longview mills, then to Chicago as sales rep.

Mr. Wiewel joined the Pulp Division's construction engineering dept. in 1952, subsequently serving in plant engineering and as shift supt. at Longview, then on special assignment at the Everett mills before entering sales in 1957.

Mull, Mead Chief, Dies

C. Noble Mull, chief engineer of The Mead Corp. from 1952, died of a heart attack recently at his Chillicothe, O., home. He joined Mead in 1922—36 years ago—as a draftsman in Dayton, O., and had been at Chillicothe since 1931.

"From ingot to fourdrinier wire"



HAIRSPRING ACCURACY — BRIDGE-BEAM SIZE

Our machine shop doesn't make hairsprings or bridge beams, but our maintenance and construction operations demand equal versatility from our men and machines. Hub of an integrated operation such as ours, its skilled personnel are ready to machine a part to a fraction of a thousandth of an inch, on a tiny instrument part or a huge loom frame.

Because our plant is *completely integrated*, every wire we ship has undergone thorough and continual analysis, control and testing from the raw metals to your finished fourdrinier wire ready for quality paper production.

We are proud to say they are *truly ours* — "from ingot to fourdrinier wire."

EASTWOOD-NEALLEY CORPORATION
Belleville, N. J.

From East and South They See West's Big Trees

Eldon Gamble, chief engineer, Northwest Paper Co.; **Tom Woodward,** power supt., Detroit div. Scott Paper; **Frank Ashley,** project engineer for new Beloit Fourdrinier going into production at Northwest Paper next July. (Pictures taken at recent Engineering conference in Portland, Ore.)

In front of 1,000 year old Sitka spruce, **Glen L. Crozier,** plant engineer, Fraser Paper, Madawaska, Me., **Brister B. Pierce,** plant engineer, Gaylord Container, Bogalusa, La.

Northeast

Memo from MRC

CLAYTON T. BOCKUS is now process control supt. covering Brewer and Lincoln divisions of Eastern Corp. The U. of Maine grad (chem engineering) joined Eastern in 1929. . . . CHARLES W. RAY steps up to asst. kraft mill supt. in Eastern's new Lincoln kraft mill. He's been with St. Joe Paper, St. Regis at Pensacola, Coosa River Newsprint Co., then Riegel as asst. supt. of its Acme mill. . . . ELDRIDGE G. STONE moves up to tech. asst. to paper mill supt. at Eastern's Brewer div. He specialized in design and drafting of machinery for Lombard Traction Engine Co. and Keyes Fibre Co. both of Waterville, Me. Later he moved to Great Northern Paper in Millinocket as group engineer and project leader. . . .

HEWITT WELSH has been elected a vice pres. of Clupak, Inc. He recently joined Clupak as tech. dir. after having helped developed Clupak paper for West Virginia Pulp and Paper Co. JOSEPH POWELL succeeds THOMAS GERACE as pulp supt. of St. Regis Paper Co.'s Deferiet, N.Y. mill. . . .

MALCOMB C. WHITE is now supervisor

Paperboard products get a real lift with TITANOX*. Packaging with greater point-of-sales appeal . . . book and magazine stocks with greater contrast and less show-through . . . opacified glassines and waxed papers with high legibility—all share in the matchless whitening, brightening and opacifying power of TITANOX titanium dioxide white pigments.

To achieve these results, papermakers can choose from among such white pigments as TITANOX-A-WD, TITANOX-C-50, or TITANOX-RA-50. Whether used at the beater or in the coating, TITANOX white pigments insure easy mixing, complete dispersion and uniformity of all properties. Titanium Pigment Corporation, 111 Broadway, New York 6, N. Y.; offices and warehouses in principal cities.

TITANIUM PIGMENT CORPORATION

Subsidiary of NATIONAL LEAD COMPANY

*TITANOX is a registered trademark for the full line of titanium pigments offered by Titanium Pigment Corporation.

5729

Strictly Personal

for materials handling at Oxford Paper Co's. Rumford, Me. mill. . . . JOSEPH R. CARNEY steps up as staff production mgr. in Oxford's New York office. Other Oxford changes at Rumford: VINCENT A. CARPANO asst. supervisor, tech. service to asst. to gen. supt.; HARRY C. KINNE, tech. service engineer to asst. to beater room supt.; ASHTON S. HAMILTON, chief chemist, tech. service to tech. service group leader for the paper mills; WALTER H. DIETERICHS, tech. service engineer, hardwood kraft mill to chief chemist, tech. service; WALLACE E. HEWITT, chem. engineer, Island div., to chem. engineer for plain paper mill and RICHARD N. HESS, chem. engineer, filter plant, to groundwood mill as well.

JEROME KLEIN is now supervisor of quality control at Paterson Parchment Paper Co. at Bristol, Pa. . . . GEORGE A. DAY is head of Brown Co.'s staff tech. service group. . . . RICHARD T. DANDO steps up as sales enginer for Albany Felt Co. covering Vermont, western Mass., New Hampshire and eastern New York. He's a m. e. grad of Lafayette College, has been in production work for Scott at Chester and Fort Edward. . . . HARVEY S. BENNETT now represents Subox, Inc. in New England and will assist Vice Pres. THEODORE J. EBERHARDT as sales mgr. for northern U.S. . . .

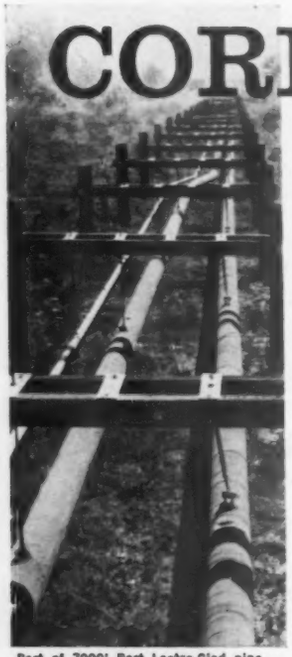
BOB SHOOK has been named sales mgr. of the pulp and paper equipment div., Sprout, Waldron & Co., Inc. He's a m.e. grad from Bucknell, has been with Sprout since graduation in 1949. . . .

EARLE WEAVER, mgr. of the Northern div. purchasing dept., retires after 44 years with IP and ROBERT E. CROCKETT takes over Dec. 31. Mr. Crockett is a grad of the U. of Maine, joined IP in 1935 at the Otis, Me., mill in the electrical and engineering dept. He has been asst. mill mgr. at the Niagara Falls, N.Y. mill. He wil now headquarter in N.Y.C. LAURENCE G. THURSTON steps up as asst. mill mgr. at Niagara Falls. He's a grad of U. of Maine, joining IP in 1926 at its Piercefield, N.Y. mill. . . . DR. C. G. ALBERT, director of research of Minerals & Chemicals Corp. of America announces appointment of ROBERT STEINBRUCH as mgr. of contract research, a new post. . . .

The industry was saddened to learn of the death of ROSE PORTER wife of REED PORTER, exec. secy., Assn. of Pulp Consumers. . . . WILLIAM P. KATZ, vice pres. of production for all divisions of Gibraltar Corrugated Paper Co., steps up as v.p., display div.

ALLAN B. COPPING was appointed asst. mgr. at International Paper Co.'s Otis mill in Chisholm, Me. JUDSON HANNIGAN JR. replaces him as asst. mgr. at the company's Hudson River, N.Y., mill. . . . . A. R. CASPER becomes vice pres.-marketing for Great Northern Paper Co. with headquarters in the home offices in Bangor, Me. ROBERT A. HAAK moves up as vice pres. and mgr. of sales. . . .

HENRY GESSNER JR. joins American Potash & Chemical Corp. as asst. export mgr. in the New York offices. He will be in charge of exports to Central and South American countries, under the direction of ERNEST A. GRAUPNER, export mgr. . . . NORMAN A. FLETCHER is new mgr. of mfg. for the valve div. of Minneapolis-Honeywell Regulator Co. Born in England, Mr. Fletcher is a grad of the U. of Wisconsin and joined Honeywell in 1956. . . . JAMES P. MONTAGUE is representing John W. Bolton & Sons, Inc. in the middle Atlantic territory, with headquarters at 1938 Guernsey Ave., Abington, Pa. He is a grad of the U. of Miami. . . .



Part of 7000' Bart Lectro-Clad pipe running from Diamond Alkali plant to river storage tank.

CORROSION
handling problem solved by BART
LECTRO-CLAD® *pipe*

At the Muscle Shoals chlorine-caustic soda plant of Diamond Alkali, one of the largest of its kind, BART Lectro-Clad pipe carries hot caustics to storage tank—efficiently and economically.

IF YOU HANDLE CORROSIVES OF ANY KIND—

Investigate BART Lectro-Clad pipe and fittings. Providing a smooth, ductile, pore-free coating of nickel in its purest form, they combine high strength, heat tolerance, and remarkable ease of fabrication and maintenance. Most sizes readily available, others to order. Write distributor for full technical data. **Michigan Pipe Co., 2415 Burdette Ave., Ferndale, Michigan.**

BART MANUFACTURING CORPORATION
ELECTROFORMING • PIPE LINING & COATING • PLATERS
CHEMICAL PUMPS • ENGINEERING DESIGN SERVICES
227 Main Street, Dept. P-10, Belleville 9, N. J.

Hatch Retiring, Will Choose His Successor

RAYMOND S. HATCH, vice president and director of research of Hudson Pulp & Paper Corp., will retire July 1, 1959, for the second time in his long career, and will devote the coming months to choosing a successor for his post. Dr. Hatch, now 75, joined Hudson in 1950 following retirement from Weyerhaeuser Timber Co., where he served as director of research of the Pulp Division.

Hudson also announces appointment of Dr. Alex Sacher to the newly created post of vice president of commercial development. He was formerly technical director of Standard Insulation Co., East Rutherford, N. J.

Pacific

Memo from LHB

DON ALTMAN, formerly Allis-Chalmers rep. in the Seattle territory and now manager in London, England for that company, was back to his Puget Sound haunts recently for a vacation with a shiny Karmann sports car . . . LOUIS VAN ARSDALE, plant engineer of the "mothballed" Rayonier Shelton, Wash., mill, and wife, Katherine, summered on Hood Canal. He has been on loan to the Rayonier Timber Dept. in Hoquiam . . .

GEORGE CROPPER, liaison executive for all the Rayonier Washington state mills, and his wife, Kate, now have two married sons. The second, Fred, was

Brown

Robison

Changes at WTCo and N.C. Pulp Co.

JOSEPH C. BROWN JR., mgr. of Grays Harbor mill, pulp div., Weyerhaeuser Timber Co., Cosmopolis, Wash., since startup of the plant early last year, takes on executive duties with North Carolina Pulp Co. (WTCO subsidiary) at Plymouth, N.C., and MERRILL ROBISON, construction eng. of pulp div., succeeds Mr. Brown as mgr. at Grays Harbor. Mr. Robison succeeded the late GERALD ALCORN as pulp div. construction eng. in 1956 and had charge of design and construction of the new MgO sulfite pulp mill at Cosmopolis.

married recently . . . ED MCGILL, supt. Rayonier Shelton, where he is busy with a maintenance crew and wife, Betty, built a garden spot home on Hammersley Inlet. Their daughter, Sheila, and husband are at the Yosemite dam project in California, where he works with Bechtel Engineering . . . WINSTON SCOTT, Shelton mgr., and wife, Kay, spent summer on Lake Spencer . . .

M. R. OBERDORFER heads a newly formed Sandwell International Inc., in Portland, Ore., as resident representative. This is the ninth affiliate of The Sandwell Organization, engineering-management firm of Vancouver, B.C. Prior to joining Sandwell firm in 1956, Mr. Oberdorfer was pres. of St. Helens Pulp & Paper Co. . . .

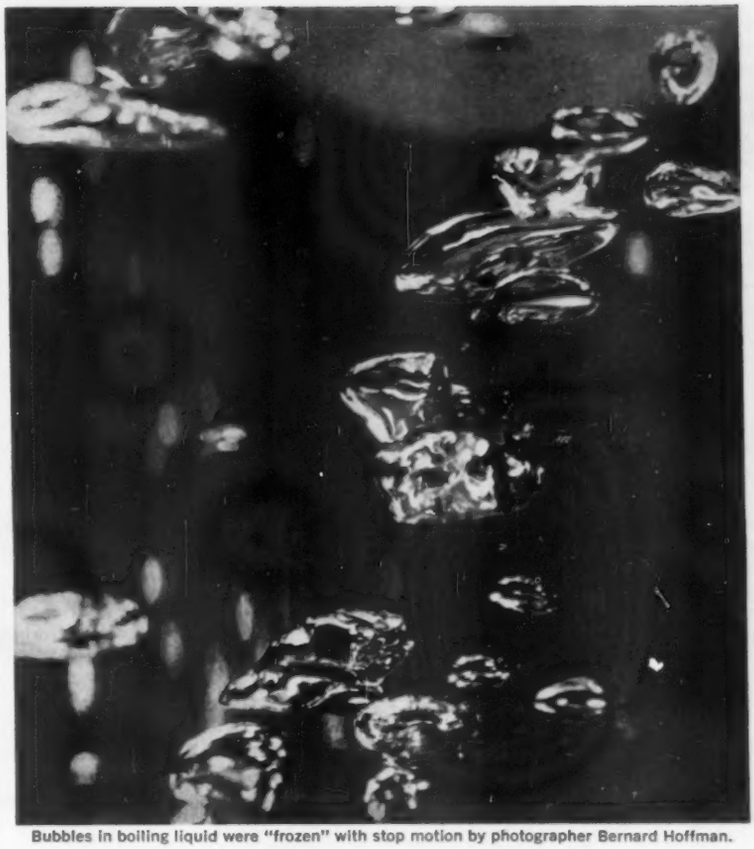
MILLARD H. PHELPS was appointed sales engineer in the San Francisco office of Reliance Electric & Engineering Co. . . . ROLAND L. SUNDSTROM was promoted to tech. asst. to the paper mill supt.

Jack Lamb

Victor Bowlen

30 Years with St. Regis

Celebrating three decades of service with St. Regis Paper Co. are J. M. Lamb, res. mgr. at Tacoma mill since 1953, and Victor M. Bowlen, chief electrician since 1955.



Bubbles in boiling liquid were "frozen" with stop motion by photographer Bernard Hoffman.

Controlling Temperature in Fluid Engineering

Heat is generally only one part of your problem. Pressure, abrasion or corrosion factors usually must be taken into account, too. So if your past experience offers no precedent, you can look to S. Morgan Smith's specialized engineering leadership for assistance.

A number of materials are available to meet extreme working conditions. Here the broad SMS background combines with specialized valve engineering to help you. Perhaps R-S Butterfly Valves can be applied to control volume and flow at high temperatures. Or, if heat and corrosion make extremely accurate timing and fast, drop-tight closure a tough problem, an SMS Rotovalve could be the answer. Whatever your special processing needs, you can get help in protecting your equipment investment.

There is a full SMS line – standard R-S Butterfly Valves ready for fast assembly and shipment from stock, Rotovalves and Ball Valves. A call to our nearest representative will bring information. Or, write S. Morgan Smith, York, Pa., for data on standard valves or special applications.

SMS S. MORGAN SMITH HYDRODYNAMICS

AFFILIATE: S. MORGAN SMITH, CANADA, LIMITED, TORONTO

Rotovalves • Ball Valves • R-S Butterfly Valves • Free-Discharge Valves • Liquid Heaters • Pumps • Hydraulic Turbines & Accessories

(wrapping), Crown Zellerbach, Camas. WILLIAM O. BEATON, bag factory supt., Camas, succeeds Mr. Sundstrom as tech. asst. to the paper mill supt. (tissue), Camas . . . ROLAND E. TORNQUIST joins American Potash & Chemical Corp. as asst. to the treas., LAWRENCE A. ADAMS . . .

WM. F. FARLEY, plant mgr. container div., Boise Cascade Corp., becomes asst. to the pres., working on special projects under Pres., R. V. HANSBERGER . . . PAUL JOHNSON, shift chemist at St. Regis Paper, Tacoma, heads for Paper Institute, Appleton, on a scholarship award. He is a U. of Wash. graduate in chem eng. . . . JACK GILBERG, of General Chemical, "achieved the costly event" of a hole-in-one (treats for club) at Oaks Country Club, Vancouver, Wash. . . .

JOHN M. FULTON, director of purchases and corporate representative, Crown Z Portland, is assoc. chairman of Div. A in a special United Fund-Red Cross campaign under way in that area . . . IVAN W. SHAFFER, master mechanic at CZ Port Townsend, retired after 30 years service . . . J. B. FAGOT, at one time placement mgr. for Marathon Corp., is director of management development, Fibreboard Paper Products, a newly created position . . . PHIL JOHNSON, industrial engineer at CZ West Linn for past two years, enrolled at Stanford U. for graduate work in economics . . .

HENRY M. DENNIS, asst. vice pres. of Scott Paper Co. and mgr. of timber div. on Pacific Coast, retires to become a consultant for Scott Paper, concerning himself with the operation of Mountain Tree Farm and the Canadian affiliates, Elk River Timber Co., Owikeno Lake Timber Co. and Northern Development Ltd. T. ROBERT SHELDON, formerly assistant to Mr. Dennis, succeeds him as mgr. of West Coast timber div. activities. . .

BRUCE A. CRICHTON joins Western Corrugated, Inc., Beaverton, Ore., as sales representative handling corrugated shipping container sales in the Portland area. . .

CARL ZOLLO, machine tender, CZ Camas, taking early retirement with over 40 years of service. . .

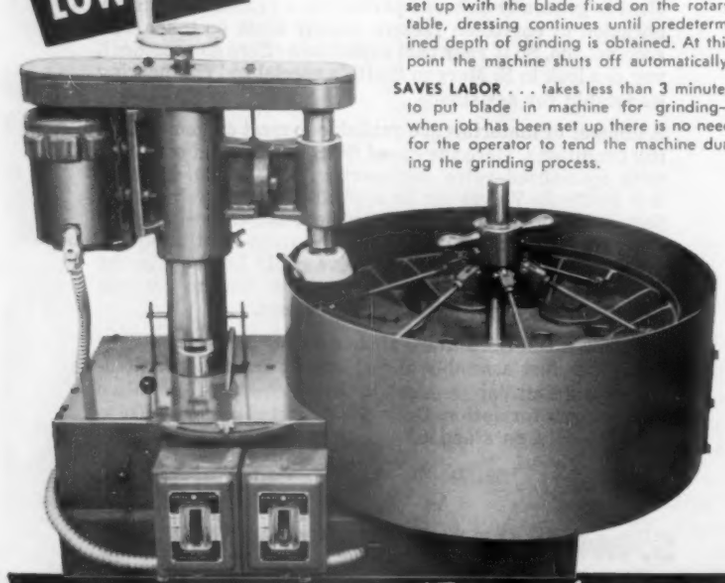
Committee for Coast Meet

For the first meeting of the Pacific Coast Supts. Division ever to be held in California—at the Hotel Sir Francis Drake in San Francisco, Dec. 4-6, these are chairmen and officials: General chairman—HENRY W. DAUTERMAN, Longview Fibre Co.; technical program—GLEN D. KING, Crown Zellerbach Corp., West Linn (three co-chairmen from California to be appointed); convention secretary—KAY FRALICK, Morden Machines Co.; local committee—HUGH BOLGER, Cameron Machine Co.; arrangements—A. C. PERRIN, Reliance Electric & Engineering Co.; entertainment and ladies' program—HUGH BOLGER; finance—R. BURKE MORDEN, Morden Machines Co.; get-together party—DEAN BROSCHE, Corn Products Sales Co.; housing—LOUIS MEUNIER, American Forest Products Corp. Paper Mill Division, Newark, Calif.; and E. W. BEARDSLEY, Corn Products Sales; mill tours—NEIL WILLESTOFT, Crown Zellerbach, Antioch, Calif.; and AL GEDMAN, Huyck Felt Co.; registra-

Nopco Names Robert J. Kingsley West Coast Gen. Sales Mgr. . .

. . . according to Perc S. Brown, vice pres. i/c western operations, Nopco Chemical Co. In addition to his duties in the newly created position, Mr. Kingsley will continue as sales mgr. for the fine chemicals div. As gen. sales mgr. he will be in charge of a new expanded sales program for all of the company's sales divisions in the eleven western states.

New LOW COST Tidland AUTOMATIC DOCTOR BLADE GRINDER



AUTOMATIC . . . once the machine has been set up with the blade fixed on the rotary table, dressing continues until predetermined depth of grinding is obtained. At this point the machine shuts off automatically.

SAVES LABOR . . . takes less than 3 minutes to put blade in machine for grinding—when job has been set up there is no need for the operator to tend the machine during the grinding process.

PRECISION GRINDING . . . regardless of the blade length (up to 280") grinding will be uniform and precisely to the tolerances required. Rate and depth of grinding readily selected and set from .004 to 1/16".

LOW COST . . . the original low price represents an easily amortized capital investment.

COMPACT . . . the machine occupies less operating space than a standard office desk.

Tidland's precision, doctor-blade grinder features a heavy-duty, ball-bearing grinder quill; a ball-bearing mounted rotary table with a positive clamping device for holding the blade; automatic mechanical feed; and a self-contained coolant system.

Two models of the machine are available, a self-contained cabinet model and a bench model. Each model comes in three standard table diameters . . . 18-inch, 24-inch, and 30-inch to accommodate blades to 280 inches in length. The machine is completely automatic, however the machine may be fed manually.

For further information, write, wire or call Tidland MACHINE COMPANY P. O. BOX 1014, CAMAS, WASHINGTON

NEW! From Standard Oil

ESKAR

Waxes ★

Standard Oil offers the paper industry a full line of waxes to meet coating needs. Each of the four ESKAR Waxes has a high blocking point, excellent stability, high strength, and outstanding odor and oxidation stability. Here are suggested ESKAR Wax uses: ESKAR R-50—For special high blocking point, high gloss coatings. May be used straight or in blends. ESKAR R-40—For liners and overwraps where sealing strength is important. ESKAR R-35—For saturation waxing and carton applications. ESKAR R-25—For dry waxing, as a process ingredient and miscellaneous uses. Get more information about these new ESKAR Waxes. Call your sales representative in any of the 48 Standard Oil district offices in the 15 Midwest and Rocky Mountain states. Or write **Standard Oil Company (Indiana), 910 South Michigan Avenue, Chicago 80, Illinois.**

You expect more from STANDARD and get it!

Strictly Personal

tion—WALTER BRANDT, General Dyestuff Co.; transportation—WALTER CHRISTIANI, Dorr-Oliver Co.; and wake-'em-up breakfast—GORDON PETRIE, The Black-Clawson Co.

Esco Will Represent Hills-McCanna in 11 States

Electric Steel Foundry Co. of Portland, Ore., is appointed exclusive sales representative for the Foundry Division of Hills-McCanna Co. in the 11 western states. Esco now distributes Hills-McCanna's magnesium and aluminum alloy castings which incorporate the patented Hills-McCanna "McCannacore" process. These magnesium and aluminum castings are finding increasing use in fields concerned with problems of limited space and the need for lightweight metals. The "McCannacore" process offers the design engineer a wholly new "tool" for overcoming problems imposed by conventional foundry techniques.

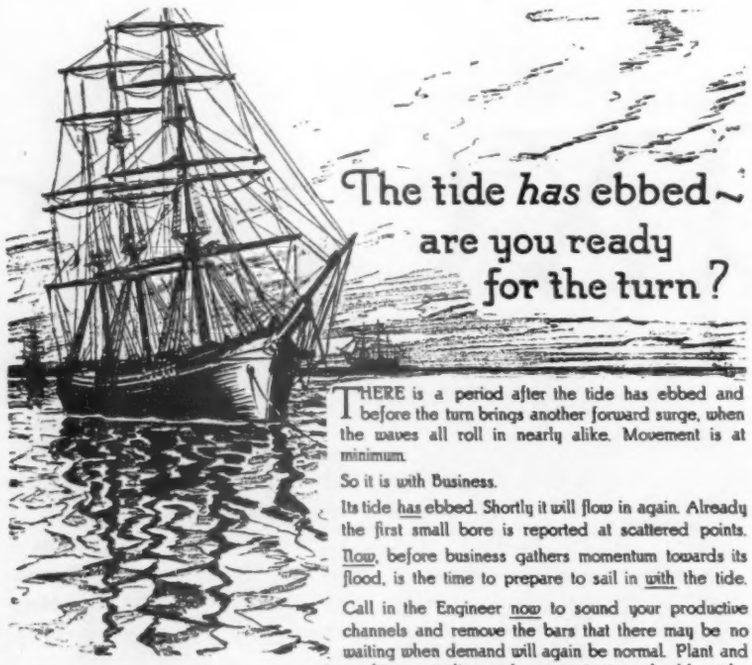
Glass-like tubes, which can be joined or bent into the desired configuration, are used instead of sand cores. They can be made as small as 1/10-in. diameter.

Ed Larson Dies

Oscar E. Larson, who in recent years has been manager of the Western Sales Division for John W. Bolton & Sons and its Emerson Mfg. Division, died in Oakland, Calif., Aug. 14. He lived at Piedmont, Calif. His widow and son, Earl, survive. Mr. Larson was plant mgr. of the Emerson Division during the war. He was also a former vice pres. of Hermann Mfg. Co.

Infilco Expands Facilities For Pulp and Paper

Indicative of the improvement in business prospects, major moves to increase facilities in sales and service are announced by E. G. KOMINEK, vice-pres. and gen. sales mgr. of Infilco Inc., Tucson, Ariz. C. T. VANDERMOLEN has been appointed asst. sales mgr. with direct supervision of sales engineering. H. W. FRAZER, former mgr. of the demineralization division, has been promoted to the new position of industrial project mgr., supervising sales engineering and project activities in the pulp and paper and other Divisions of the company. A new project engineering dept. has been organized.



The tide *has* ebbed ~ are you ready for the turn?

THERE is a period after the tide has ebbed and before the turn brings another forward surge, when the waves all roll in nearly alike. Movement is at minimum.

So it is with Business.

Its tide has ebbed. Shortly it will flow in again. Already the first small bore is reported at scattered points. Flow, before business gathers momentum towards its flood, is the time to prepare to sail in with the tide.

Call in the Engineer now to sound your productive channels and remove the bars that there may be no waiting when demand will again be normal. Plant and machinery studies and reorganizations should not be delayed. Plans should be made for possible needed additions.

The tide has ebbed.

THIS AD IS JUST AS PERTINENT TODAY AS WHEN IT FIRST APPEARED A QUARTER CENTURY AGO—FOR NOW AS THEN THE TIDE HAS EBBED . . . ARE YOU READY FOR THE TURN?

J. E. SIRRINE COMPANY · Greenville, South Carolina

Engineers SINCE 1902

A DEPARTMENTALIZED ENGINEERING ORGANIZATION SERVING • BUSINESS • COMMERCE • INDUSTRY

Armstrong Heads Westminster

Arthur F. Armstrong has been elected president and managing director, Westminster Paper Co., New Westminster, B.C., succeeding the late Elmer M. Herb, who died suddenly in July. John Ashby has been named exec. vice president and will continue in charge of all manufacturing operations in New Westminster and Crabtree Mills, Que., making headquarters in Montreal.

Mr. Armstrong, Nova Scotia-born, has been a member of the Westminster board since 1954 when Scott Paper Co. acquired a large interest. He became vice president in 1956. He became Scott's industrial relations director in 1957 with headquarters in Chester.

Mr. Herb, 56, had held top executive office longer than anyone else in the industry in British Columbia. Born in Appleton, Wis., the son of J. J. Herb, still active as chairman of the board of the Westminster company, E. M. Herb moved to Thorold, Ont., where his father was manager of Interlake Tissue Mills, and he moved to the coast when "J.J." entered the industry in Bellingham, Wash., and in New Westminster.

Canada

Memo from CLS

I. B. DEACON and F. B. RICHARDS were recently appointed controller and asst. controller, respectively, of Fraser Companies, Ltd., and its subsidiary, Fraser Paper, Ltd. Mr. Deacon assumes the post vacated by Vice Pres. L. M. SHERWOOD. He was with Stetson, Cutler & Co., when that company was acquired by Fraser Companies . . .

Directors of Hooker Chemical Ltd., North Vancouver, B.C., elected THOMAS E. MOFFITT as company pres., F. LEONARD BRYANT and HORACE W. HOOKER JR., vice presidents; THOMAS F. WILLERS, treas. and ANSLEY WILCOX 2nd, secy. Mr. Moffitt, also pres. of Hooker Chemical Corp., succeeds R. LINDLEY MURRAY, board chairman of Hooker Chemical, as pres. of Hooker Chemicals Ltd. . . W. E. SOLES, pres. and gen. mgr. of Anglo-Canadian Pulp and Paper Mills, Ltd., Quebec City, Que. announces the appointment of P. S. QUINN as mgr. of mfg. of the company and its subsidiary, Dryden Co. Ltd., Dryden, Ont. J. WINN succeeds Mr. Quinn as mgr. of Anglo-Canadian at Quebec . . . H. (BERT) MAPSON was promoted from safety direc-

Stirling ..... Mosher

Dominion Increases Staff

J. B. Stirling has been serving mills in Eastern Canada for Dominion Engineering Co. for several years, and he has now been joined by Peter D. Mosher, appointed sales engineer for the company's paper machinery division. Both are graduates of McGill Univ. Before joining Dominion, Mr. Mosher worked with Consolidated Paper Corp. and Foundation of Canada Engineering Corp.

tor to production mgr. of Crown Zellerbach Canada's Fraser Mills . . .

HUGH SYME has been named asst. to the plant engineer, HUGH YOUNG, at Howard Smith Paper Mills' Cornwall div. in Ontario . . . L. F. PATTERSON has been appointed treas. of the Don Valley Paper Co. . . .

JOHN W. SOUTHIN, Vancouver consulting engineer, has returned from Pakistan where he was engaged by Sandwell International on construction of a newsprint mill. One project he worked on there was a technique for utilizing peat as fuel. WILLIAM LOCKE, former gen. mgr., pulp div., MacMillan & Bloedel and at one time mgr. at Ocean Falls for Pacific Mills, is managing the Pakistan enterprise . . . GERALD PENNEY, formerly of Bowater's Newfoundland and now a vice pres. of Sandwell International, was also on the Pakistan job for several months; is now in Tuxtepec, Mexico, directing construction of a new paper mill . . .

JAMES PETRIE, mgr., Port Alberni pulp and paper div., MacMillan & Bloedel, has been visiting the United Kingdom and continental Europe with SAM MCKAY, Vancouver equipment man . . . ROBERT L. BONAPARTE has been named marketing mgr. for Powell River Sales Co., and his duties will include selling all products manufactured by Powell River Co. He was formerly with a management consultant firm, McKinsey & Co., Inc., San Francisco. Connecticut-born and 34, Bob Bonaparte graduated from Columbia U. He was with the U.S. Air Force during the war . . .

RAYMOND WRAY has been appointed eastern sales mgr. of Rolland Paper Co., according to by ALBERT ROLLAND, gen. sales mgr. . . . J. H. MOWBRAY JONEX, formerly vice pres. and gen. mgr., Mersey Paper Co., has been named pres. of that company.

Pulpwood Notes

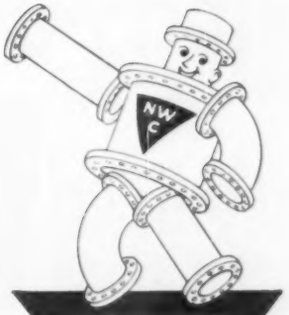
DR. CHAUNCEY D. ORCHARD, deputy minister and chief forester for British Columbia, has retired after 38 years' service. A New Brunswicker by birth and a graduate of that province's university, Dr. Orchard went to the Pacific coast in 1920 and held a wide variety of posts in the B.C. forest service on his way to the top.

HERBERT PECK, general supt. of the northern div. logging for Alaska Pine & Cellulose, died suddenly following a heart attack . . . RUSS SPAFFORD, woodyard supt., Howard Smith Paper Mills Cornwall, Ont., div., died recently. He had been with the company 11 years . . .

JOHN H. HAUBERG JR .,Seattle, becomes a director of Weyerhaeuser Timber Company filling vacancy resulting from death of F. W. REIMERS, Hammond, La., a board member nearly 25 years . . .

New members on the faculty of Yale U. School of Forestry are ZEBULON W. WHITE, professor of industrial forestry, and JESSE H. BUELL as asst. dean of the school. Mr. White, a native of Baltimore, Md., has an a.b. degree from Dartmouth and m.f. degree from Yale. Mr. Buell was born in Clinton, Conn., and has a b.s. from Wesleyan U., m.f. from Yale and ph.d. from Duke . . .

CUSTOM FABRICATIONS



NORTHWEST COPPER WORKS

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Pictures of People in the News

Scollard ..... Shutts

New Jobs in Northeast

C. E. Scollard heads a new Machine Knife Sales Div. formed by John W. Bolton & Sons, Inc. to service increased knife business. With Bolton since 1951, Mr. Scollard will have two new sales representatives under him: John H. Ebel for New England, and Thomas J. Craney for New York and northern New Jersey.

Albert P. Shutts, asst. sales mgr. since Jan. 1957, has been promoted to sales manager of Becco Chemical Div., Food Machinery and Chemical Corp., Buffalo, according to Dewey H. Nelson, division manager. A Rutgers graduate, Mr. Shutts joined Becco in 1946 as a sales rep in the New York territory.

Robt. J. Polk, Appleton Machine Co.

Mr. Polk will coordinate sales, design and production of rewinders for Appleton Machine and the recently acquired Doven Machine and Engineering Co., Chicago. He is a graduate of New York Univ. and Stevens Institute of Technology. He was formerly with Cameron Machine Co., Wright Aeronautical and Republic Aviation.

ROY B. YOUNG JR. was named chief engineer by the Moore & White Co. A grad of Lehigh U., Mr. Young was with the Young Testing Co., Bridgeport, Conn. . . .

Pribble Prentiss

Conoflow Appoints Sales Agency

GENE D. PRIBBLE and PETER L. PRENTISS are partners in the Gene D. Pribble Co., 5416 E. Beverly Blvd., Los Angeles, Calif., which was appointed exclusive representative for Conoflow Corp. in southern California. Mr. Pribble studied engineering at the U. of California and the U. of Southern California. Mr. Prentiss attended Loyola U. and West Coast U.

Walton McKinley, W-K-M Rep.

Mr. McKinley will be located in Jacksonville, Fla., and will cover Fla., Tenn., Ala., Ga. North and South Carolina as a representative for the ACF Lubricating Plug Valve.

COSTS PENNIES A DAY...

HUMIDITY CONTROL

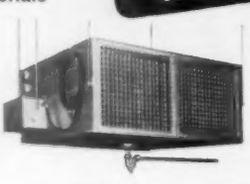
WITH

Guaranteed

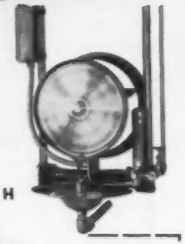
Bahnson UNIT HUMIDIFIERS

For Trouble-Free Processing, Storage of Paper and Packaging Materials

Units cost as little as $10 per unit per year to operate. Self-contained water or steam units require no floor space, minimum maintenance; can be installed singly or in groups. Have high capacity, automatic controls.



TYPE BA



TYPE H

HELPFUL FREE BOOKLETS

Just clip coupon to letterhead and send for these booklets today.

1. Illustrates and details complete line of humidifiers
2. Contains factual answers to humidity problems in printing.

NAME _____

THE BAHNSON COMPANY

PA-1 *Winston-Salem, N.C.*

E. D. Flavin ..... J. W. Amis

29 Years Served by Johns-Manville

The E. J. Bartells Co., Seattle, was presented recently with a plaque and silver lapel pins welcoming the concern to membership in the newly formed Johns-Manville Quarter Century Club for Industrial Insulations Contractors. Attending for Bartells were J. W. Amis, president, and W. T. Kay, vice-president and general sales mgr. E. D. Flavin, Johns-Manville vice president and general sales mgr. for Industrial Insulations, made the award. Also representing Johns-Manville was C. J. Rossio, Northwestern district mgr. Bartells has been closely associated with Johns-Manville for 29 years.

There are *many* features that set DeZurik Knife Gate Valves worlds apart from all others. Most important is their super-strength, the extra quality built into every DeZurik Gate Valve.

The gate is over-sized, made thicker to withstand greater pressure without buckling; welded-in ribbing binds both flanges into a sturdy structure eliminating distortion from piping strain.

Complete details in Bulletin 300. Write for it.

DeZURIK CORPORATION
SARTELL, MINNESOTA

TC TENNESSEE CORPORATION

LIQUID SULFUR DIOXIDE
HIGHEST QUALITY
SO_2

For Effective Removal of

RESIDUAL CHLORINE

Tennessee's Liquid Sulfur Dioxide is a most efficient and economical anti-chlor. Removes residual chlorine and other materials which cause color reversion or yellowing with age. It also eliminates excessive residual chlorine in water.

Available In:
- CYLINDERS
- TON DRUMS
- TANK TRUCKS
- TANK CARS

We would like to consult with you on the possibilities of Tennessee's Liquid Sulfur Dioxide in your processing.

TENNESSEE TC CORPORATION

617-39 Grant Building, Atlanta, Georgia

Harold Blakney (right), Maintenance Manager, Brown Company, Berlin, N. H. Left, Frank Hiltz, Vice President Brown Wales Co., Cooper Alloy distributors, Auburn, Me. Center, Cooper Alloy 8" angle circulating valve on digest tank.

BLAKNEY of BROWN COMPANY

tells why Cooper Alloy Valves suit him

Q. *Mr. Blakney, why does Brown Co., a leading manufacturer of pulp, paper, and other forest products, use stainless valves and fittings in its mills?*

A. Because stainless steel is one of the few materials that can take the tough corrosion punishment of pulp mill digester fluids.

Q. *Why Cooper Alloy valves?*

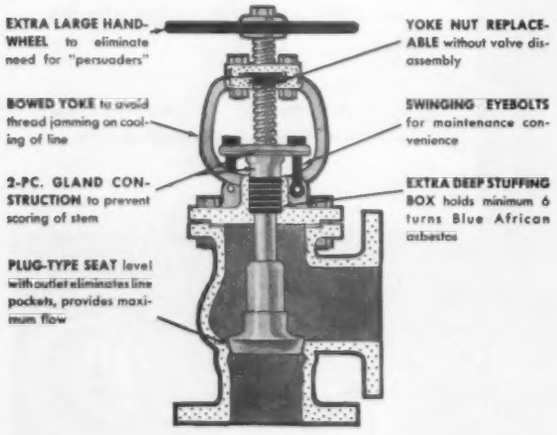
A. For long life and low maintenance. Over the years Cooper Alloy valves have proven themselves to be extremely well designed for the tough service we give them.

Q. *How, specifically?*

A. Well, these 8" angle valves, for example, have that extra-deep stuffing box to give a tighter stem seal. The seat, level with the outlet, eliminates line pockets and provides maximum flow. These plus extra large handwheel all give me less maintenance problems.

Q. *Anything else you like about Cooper Alloy valves?*

A. Yes, I like the engineering service available from Cooper Alloy we have had occasion to use, and the fine fast delivery and service we obtain from Brown Wales' nearby warehouse.


EXTRA LARGE HAND-WHEEL to eliminate need for "persuaders"
BOWED YOKE to avoid thread jamming on cooling of line
2-PC. GLAND CONSTRUCTION to prevent scoring of stem
PLUG-TYPE SEAT level with outlet eliminates line pockets, provides maximum flow
YOKE NUT REPLACEABLE without valve disassembly
SWINGING EYEBOLTS for maintenance convenience
EXTRA DEEP STUFFING BOX holds minimum 6 turns Blue African asbestos

A VALVE DESIGNED FOR STAINLESS! The Cooper Alloy valve is not an adaptation of earlier brass and iron patterns. Cooper Alloy, with over 35 years of experience in handling stainless steel, created a valve *designed to be cast in stainless!* Check the Special Design Features shown at left.

As the little CA man below is saying: *"You can tell a Cooper Alloy Valve as far as you can see it!"* Write today for *your* copy of our folder "Valves and Fittings in the Pulp and Paper Industry." The Cooper Alloy distributor near you will be glad to show you the complete line of Cooper Alloy valves *and fittings*, and their advantages. He can serve you promptly from local stocks.

COOPER ALLOY

Corporation • Hillside, New Jersey

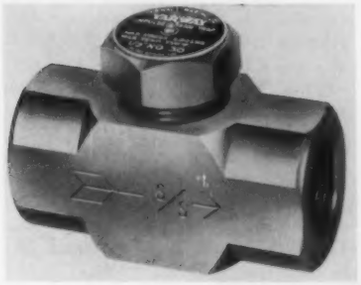
FOUNDRY PRODUCTS DIVISION

THIRTY-FIVE YEARS OF STAINLESS STEEL PIONEERING

PULP & PAPER

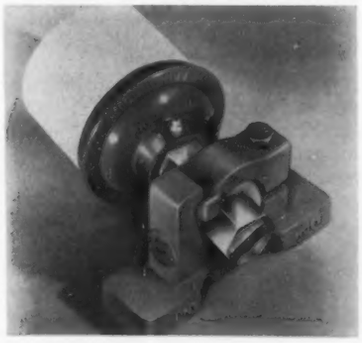
New Equipment Section

Impulse Steam Trap
. . . Handles Light Loads



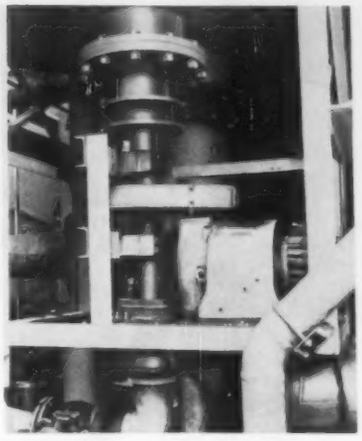
Applications: For use on steam tracer lines, steam main drips, small platens and other applications with light condensate loads.
Advantages: Design of new trap, Yarway No. 30, permits exceptional economy of operation and maintenance at light loads. Trap has replaceable valve-seat assembly, only one moving part, and stainless steel construction. Lever-type valve discharges air and condensate at full capacity at startup time and snaps shut when steam reaches the trap, providing closer shut-off. Lever action also provides quieter operation.
Specifications: Available in ½ in. size only, for operating pressures 8 to 600 psig.
Supplier: **Yarnall-Waring Co., Chestnut Hill, Philadelphia 18, Pa., CHestnut Hill 8-2600.**

New End-Seal Design
. . . For Expander Rolls



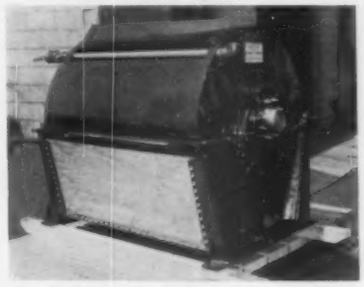
Applications: For use under wet, steamy or dusty conditions.
Advantages: Splash guard is provided for added protection against heavy spray of water. The seal itself is provided by water-repellent grease applied through the grease fitting which is easy to get at. It remains stationary while roll rotates so grease seal is maintained, giving free turning qualities.
Specifications: Available with both Fixed-Bow and Vari-Bow types of "Free-Wheeling" Expanders.
Supplier: **Mount Hope Machinery Co., 15 Fifth St., Taunton, Mass., phone 4-6994.**

New Device Unloads
. . . High-Density Stock Tanks



Applications: Unloading high-density stock tanks. First unit was used to unload 14% high-density bleached kraft stock at uniform density of 4.8 to 5% consistency.
Advantages: The unit provides increased storage; by converting low-density tanks to high-density, storage capacity may be increased 100 to 400%. It is adapted to bottom center of tower or storage tank. No propeller agitators are required, nor piping or other equipment around the periphery of the tower. Maximum horsepower is 1 hp, a saving of 50 to 150 hp over other units. Stock pumps can remove correct density immediately upon starting pump with no waiting period for system to level off to required density. Present units have run continuously for five years without failure or major repair. Installation is easy and low-cost.
Specifications: Device will unload high-density stock tanks at a continuing and even density of 4.5%, or whatever density required, controlled with 0.2%, using hand-controlled valve. If desired, a D.P. cell may be installed as a safety factor. The unit operates through use of a rotating head with integral shrouded nozzles which slice and mix stock from the bottom of the tower. Speed of rotating head, size of nozzles and amount of water pressure determine the rate and density of discharge.
Supplier: **Tidland Machine Co., Camas, Wash.**

Water Filter
. . . Uses No Water



Application: Designed to remove chips sometimes blown off with liquor at termination of the cooking period.
Advantages: If chips were left in the liquor, plugging in liquor burners and Venturi scrubber nozzles would result. Screened chips are returned to the pulp system prior to the brown stock washer and the liquor is pumped to the liquid storage tank. Special Emerson shower pipe continuously cleans the wire mesh around the cylinder by the screen liquor itself.
Specifications: New 4-ft. "North" filter screen uses 30 mesh stainless wire and will handle from 500 to 600 gal. per min. of liquor.
Supplier: **Green Bay Foundry & Machine Works, Green Bay, Wis., HEmlock 7-3521.**

Air Vibrator
. . . Cuts Unloading Time

Applications: Unloading covered railroad hopper cars and bulk truck trailers.
Advantages: Exceptionally long pis-

no more knuckle-busting . . .

New RIDGID No. 450

Portable Tristand Chain Vise

has Large, Easy-to-Operate

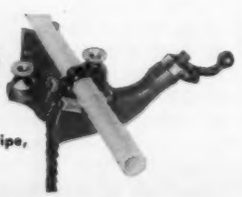
Top Screw Handle right up on top

Here's a real time saver. Not only do you get a complete workbench that's truly portable, but now you get a chain vise that's extra easy and fast to operate. Handle is right up on top where it's always handy. Handle and tightening nut are anchored to vise base . . . can't pull out.

Vise base, that overhangs front legs for clear tool swing, has hanger slots for tools, 3-size pipe bender, rear pipe rest and adjustable ceiling brace screw. Folding legs and integral tray set up easily and lock in position for rigid work base. Snap chain holds folded legs closed for easy carrying . . . no loose parts. Rubber grommets in tristand feet prevent creeping. See and try this more-for-your-money RIDGID Top Screw Chain Vise at your Supply House!

New RIDGID Bench Chain Vises
have same Extra-Efficient Top-Screw Adjustment

5 Sizes for ⅛" to 8" Pipe, Conduit or Rod



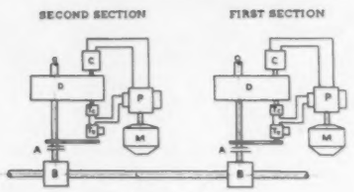
The Ridge Tool Company, Elyria, Ohio, U.S.A.

ton strokes gives maximum amplitude and thrust, and piston is the only moving part. Units have stainless steel mounting head for long life and no body assembly bolts to wear out or fatigue. Exclusive free ride design gives continual effective action. Units cut unloading time, eliminates clean-out of cars after emptying and frees personnel for other work.

Specifications: Two models are available—a 3 in. piston size, 14¼ in. long, weighing 68 lbs., and a 4 in. piston size, 17⅛ in. long, weighing 115 lbs. Hydraulic clamp assembly also available for attaching to cars not equipped with standard dovetail brackets.

Supplier: **National Air Vibrator Co., 2372 W. Seventh St., Cleveland 13, O., ENdicott 1-8246.**

Differential Hydraulic Drive . . . Offers Marked Advantages



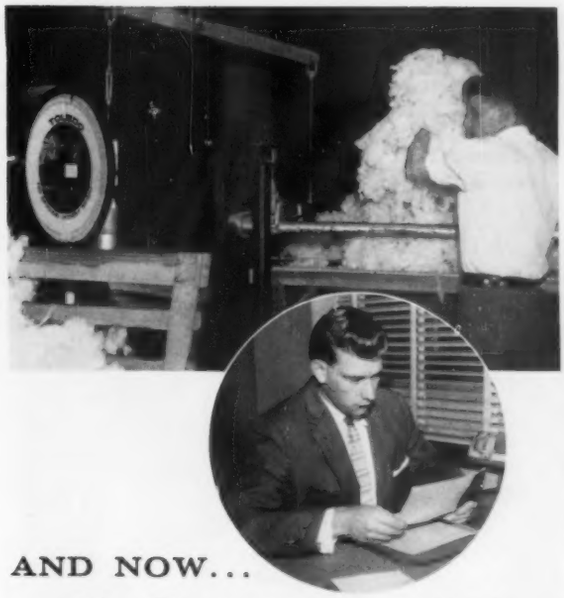
Operation of Drive . . .

Line shaft L drives differential gear D through bevel gear B and clutch A. Output shaft O of gear D is connected to drive shaft of machine section. Speed of section controlled by varying displacement of hydraulic pump P and thereby speed of hydraulic motor C. Variable tachometer Tv driven by gear D's input shaft. Constant tachometer Tc driven by hydraulic motor C. Pressure variations in loop connecting tachometers Tv and Tc control displacement of pump P, thereby controlling speed of motor C, and, through C, speed of output shaft O. Speed of motor C is referred to shaft L through Tv. Variable Tvs may be driven by synchronous motors, in which case speed is referred to frequency of power supply.

Applications: For driving papermaking machines.

Advantages: New type of drive makes it possible to take up slack in all sections of the paper machine and achieve extremely accurate draw control. Clutch does not engage until inching speed is reached, eliminating much of the duty and increasing clutch life. Each section of the paper machine can be inched forward or in reverse without the line shaft or prime mover running and can be control-braked. Cost is low because hydraulic and differential components are standardized. Hydraulic components are more compact, need minimum maintenance and permit variations in application not feasible with mechanical drives.

Specifications: Hydraulic components



AND NOW...

a 5th Generation helps carry on our **100-Year Tradition** of making **Better Felts**

MEET Pieter Shuler Diehl—
a direct, fifth-generation descendent of
Asa Shuler, who, with J. W. Benninghofen,
founded this company 100 years ago.
From his first vacation job
in our pickering room, six summers ago,
to his present administrative position
following this spring's graduation from
The Philadelphia Textile Institute,
he has been trained in the tradition
that makes Hamilton Felts—*better* felts.

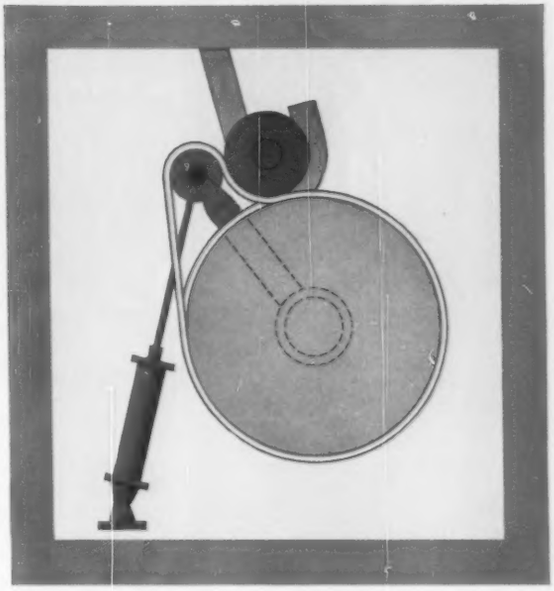
In these days of frustrating errors
due to the difficulty of securing
products of uniform quality
it should be refreshing to learn
that Shuler & Benninghofen is
still a "family business"—still
producing old time quality felts
with many modern technical improvements.
Uniform every time—in style and porosity.
Next time *you* need a felt—why not
switch to *Hamilton* Felts?

YOU CAN'T BEAT
Hamilton
FELTS

SHULER & BENNINGHOFEN
HAMILTON, OHIO

BELOIT UNIT MODERNIZATION

ONE OF A SERIES SHOWING TYPICAL BELOIT SOLUTIONS TO COMMON MILL PROBLEMS



Beloit reel spool starter

- Poor starts at each turnover?
- Spool bounce and chatter?

Beloit Reel Spool Starter eliminates needless paper loss

This low-cost item can pay for itself in weeks! Mills report that with the addition of a Beloit spool starter to an existing reel they save hundreds of pounds of paper daily. With this device the spool is at drum speed before contacting the reel drum. No bounce! No chatter!

» **ACT!** *Write for facts—or let a Beloit Sales Engineer show you the economy and operating advantages of a Beloit reel spool starter. Send inquiry to Beloit Iron Works, Beloit, Wisconsin.*

100 YEARS
BELOIT
PAPER MACHINERY
your partner in papermaking

STRENGTH CURVE REFINING IN MINUTES ...NOT HOURS

Using the Bauer-Mead Laboratory Refiner, you can get accurately reproducible data in only a fraction of the time required by other equipment.

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The Bauer Bros. Co.

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Available in Oregon

Vast natural resources and products for processing pulp and paper into finished goods. Here, in the nation's largest lumber producing state, is water in abundance, with a sustained supply of chips and logs, inexpensive power and intelligent labor force. Here, too, is an ever-growing market for all paper products. Businesses in every field of the pulp and paper industry will find ideal locations in Oregon. You'll find industrially planned plant sites and morale-building recreational facilities, in the land of unlimited opportunity. For further confidential information on Oregon's growth plan for you,

write to

Julius R. Jensen, *Director*

OREGON *Department of Planning and Development*

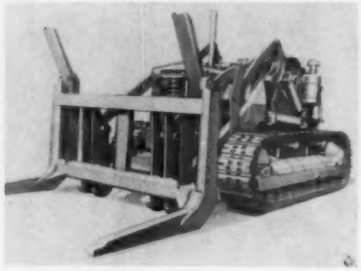
724A State Office Building, Portland 1, Oregon

are available in any size needed for draw control desired. Each section of any process line can be driven by individual a.c. or d.c. motors, holding sections in a constant and exact relationship.

Supplier: **The Pusey and Jones Corp., Wilmington 99, Del., OLympia 6-8281.**

New Log Fork

. . . Handles Large Loads



Applications: Handling large logs or bulky palletized material.

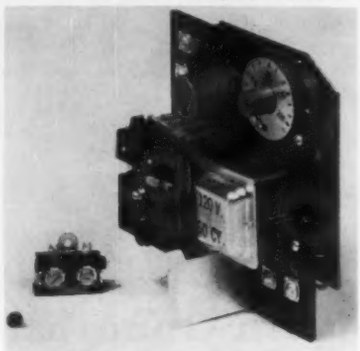
Advantages: Log fork, specifically designed to give increased log-handling efficiency to No. 977 Traxcavator, has two tines made of solid, high-strength steel plate 4 in. by 7 in. cross section, tapered to the tip. Also available are twin, hydraulically operated top clamps which permit handling off-center loads. These clamps are especially designed to handle long lengths of timber and replace the 2 ft. top standards which are standard on the fork. When equipped with the new fork, the No. 977 Traxcavator has lifting and reaching specifications that allow loads to be transported and placed with maximum versatility. Counterweight attachment for special Traxcavator applications may be used for optimum stability.

Specifications: Forward reach of the fork at ground level is 7 ft. 3 in. and at maximum lift height, 6 ft. 9 in. Maximum forward reach is at a height of 6 ft., when forward tip of the tines extends 9 ft. 1 in. forward of the machine. With work at highest position, clearance between ground and hinge pin is 12 ft., with maximum unloading clearance (tines level) of 11 ft. 10 in. The fork can attain 25 degrees of back-tilt at ground level, increasing to 45 degrees with fork in maximum lift position.

Supplier: **Caterpillar Tractor Co., Peoria, Ill., PEoria 6-3311.**

Temperature Control System

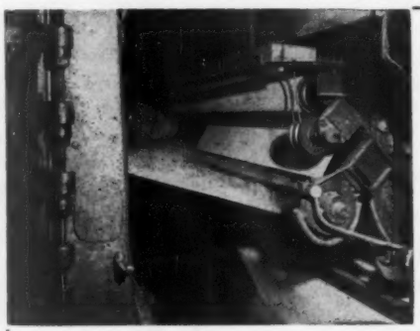
. . . Is Highly Versatile



Applications: For remote control of air, surface or immersion temperatures.

Advantages: Low-cost system consists of compact transistorized amplifier which serves as temperature controller, and vibration-proof mounting containing a thermistor which acts as sensing element. Thermistor mounting and amplifier relay can be as much as two miles apart. Mountings for thermistors are available in wide variety of sizes and shapes and can withstand hammer blows without damage to sensing element. Control point is very stable, with shift of less than 1° for every 70° change in ambient temperature. One amplifier relay can be used with variety of heat sensing units.

Specifications: Amplifier relays are available in eight overlapping ranges of about 100° F. to permit control from −60° to +520°. Relay can be either surface or flush-mounted using



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DUPASQUIER DRIPLESS STEAM SHOWER PIPE

- **WET END—breaks up bubbles, disperses foam**
- **DRY END—increases sheet moisture, improves finish, lowers bulk and caliper**
- **SAFELY USED anywhere dripless steam desired**

Custom Built for Any Machine

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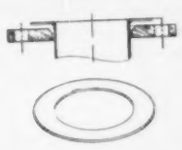
Write for Illustrated Folder

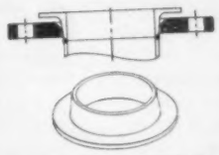
J. H. DUPASQUIER 560 E. Clarendon St. Gladstone, Oregon

It's "Alaskan" Stainless Steel for STUB ENDS

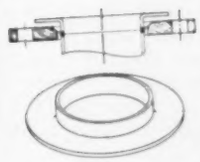
SAWED (SK-1)



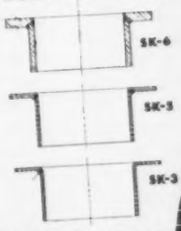
CAST (SK-38)



PRESSED (SK-2)



FABRICATED



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. . . for the Pulp and Paper Industry

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Infra-Red Gas Burners

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Write for information to:

Red-Ray Manufacturing Co., Inc.
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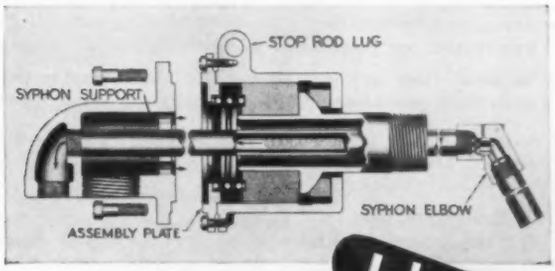
Tel: WHitney 3-1000

Rotary Joint Headquarters ★ Johnson started the whole idea. Today's *complete* line includes sizes from ¼" to 8" . . . self-supported, pipe-supported, or rod-supported . . . for stationary or rotating syphon pipe . . . all operating speeds and pressures . . . for paper machines, calenders, corrugators, waxers, embossers, roofing machines, printing presses.



Type SDP shown. Hinged syphon elbow replaces unwieldy curved syphon pipes with two straight pipes. Newest Johnson development is the Quick Release nipple. Write for Bulletin S-3001.

Johnson Rotary Pressure Joints

First in the Paper Industry

THE JOHNSON CORPORATION
849 Wood St., Three Rivers, Michigan

Greater Production of Higher Quality Pulp

- *in Less Time*
- *at Lower Cost*

This is the end result of the various processes and equipment which we have installed in pulp mills throughout North America. Send us details of your requirements.

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Watertown, N. Y.

Associated with

Chemipulp Process Ltd., 253 Ontario St., Kingston, Ont.

•

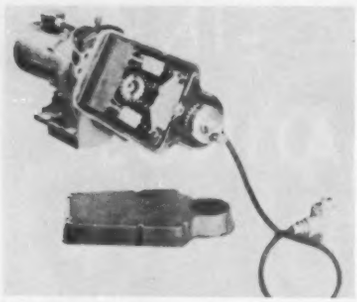
Pacific Coast Representative
A. H. Lundberg, Inc., P. O. Box 202, Mercer Island, Wash.

special box 5 x 7 x 2¾ in. and has resistive load rating of 1,500 watts at 240 volts. This system (R7079A) has been accepted for listing by Underwriters Laboratories.

Supplier: **Minneapolis - Honeywell Regulator Co., Control Device Div., 2747 Fourth Ave. South, Minneapolis, Minn., FEderal 2-5225.**

Bar-Setting Device

. . . Has Remote Control



Applications: For push-button control of the bar setting on Stock-Makers, Slush-Makers and Stuff-Makers.

Advantages: Saves time and labor.

Specifications: Set-Maker is an electrical gear-motor drive working through a torque limiting device. Set-Maker is attached to the handwheel shaft and has a built-in locking pin that can be disengaged for manual handwheel operation.

Supplier: **Morden Machines Co., 3420 S.W. Macadam Ave., Portland 1, Ore., CApitol 2-9355.**

Larger Continuous Digester

. . . Produces 550 Tons Per Day

Applications: Producing top quality bleachable kraft pulp.

Advantages: The Kamyr continuous cooking unit is said to give a remarkably uniform product, high quality, easier control in bleaching, smoother steam load, and easy operation. One man can operate, lubricate, log data, and carry out necessary routine maintenance on the digester. In spite of the large production, the new 550-ton unit needs only 3200 sq. ft. of floor area.

Specifications: High pressure chip feeder consists of a rotating tapered plug with overlapping ports extending through the plug giving continuous flow in both directions. Digester operates full of liquor. Chip level is sensed by two spaced rotating paddles which transmit information to the control panel. Fresh cooking liquor is continuously pumped into top of digester maintaining digester pressure at 165 psi and avoiding vaporizing in the system. Two steaming vessels and low and high pressure feed systems comprise a dual feed system. In the digester the cook is divided into three phases: the feeding zone at the top, the heating zone, and the cook, which lasts about two and a half hours. Fiber is then removed at the bottom through a strainer and released from high pressure through a valve into the blow tank.

Supplier: **Kamyr Inc., Hudson Falls, N.Y., phone 4-3356.**

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. . . Eliminates Jamming

Applications: For use on any type of pulpwood chipper.

Advantages: "MURCO" V-type chipper spout holds any size stick or log. Wood moves in straight line with no side movement, reducing sawdust to minimum and improving chip quality and uniformity. There is no spout plugging.

Specifications: Hinged cover is operated by double acting pneumatic cylinder from normal mill air supply. Valve is located at a point convenient to chipper operator.

Supplier: **D. J. Murray Mfg. Co., Wausau, Wis.**

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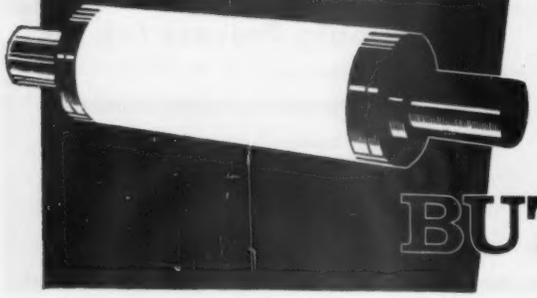

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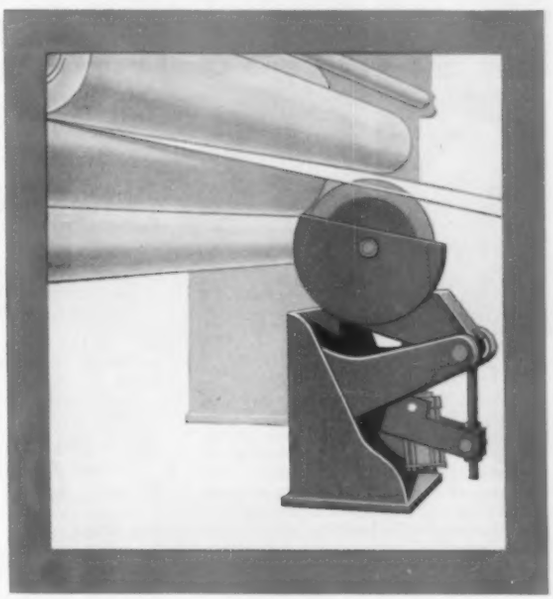

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MEETING DATES CALENDAR

Sept. 30-Oct. 2
TAPPI Testing Conference
Gen. Oglethorpe Hotel, Savannah, Ga.

Oct. 3-4
APPMSA Connecticut Valley Div. and TAPPI New England Section
Berkshire Inn, Great Barrington, Mass.

Oct. 9-10
TAPPI Deinking Conference
Biltmore Hotel, Dayton, O.

Oct. 10-11
APPMSA Penjerdel Div.
Bedford Springs Hotel, Bedford Springs, Pa.

Oct. 14-16
Society of Industrial Packaging and Materials Handling Engineers
Chicago Coliseum, Chicago, Ill.

Oct. 15-17
APPMSA Southern and Southeastern Divs.
Read House, Chattanooga, Tenn.

Oct. 20-22
TAPPI Plastics-Paper Conference
Sheraton-Kimball Hotel, Springfield, Mass.

Oct. 20-24
Annual National Safety Congress
Conrad Hilton Hotel, Chicago, Ill.

Nov. 4-6
Canadian National Packaging Exposition
Exhibition Grounds, Toronto

Nov. 5-6
TAPPI Corrugated Containers Conference
Netherlands-Hilton Hotel, Cincinnati, O.

Dec. 4-6
APPMSA Pacific Coast Div.
Sir Francis Drake Hotel, San Francisco, Calif.

Jan. 14-15
Annual Pulp and Paper Conference
Western Michigan U., Kalamazoo, Mich.
TAPPI-APPMSA Joint Meeting
Hotel Harris, Kalamazoo, Mich.

Jan. 28-30
CPPA Annual Meeting
Queen Elizabeth Hotel, Montreal, Que.

Feb. 2-6
Canadian Materials Handling Exposition
Exhibition Grounds, Toronto

Feb. 22-26
Paper Week—APPA, TAPPI, SAPI

Mar. 16-20
National Assn. of Corrosion Engineers, Pulp and Paper Symposium
Hotel Sherman, Chicago, Ill.

Apr. 21-28
Netherlands Packaging Exhibition EUROPAK 1959
RAI Exhibition Halls, Amsterdam, The Netherlands

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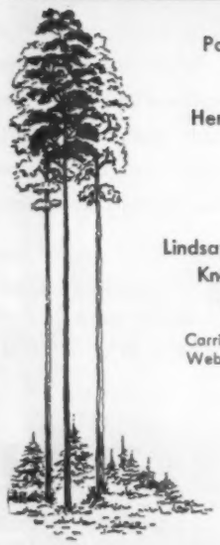

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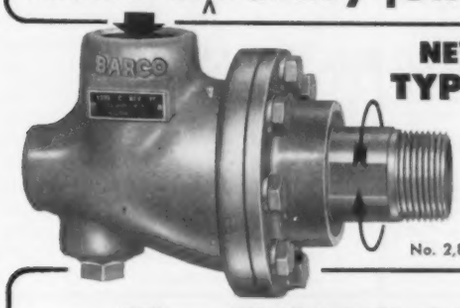

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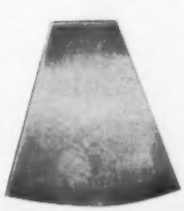

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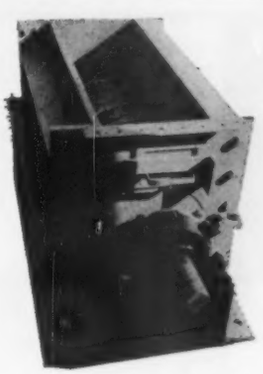

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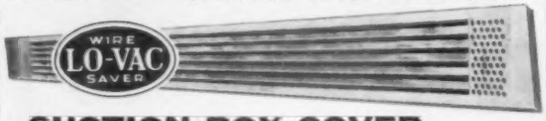

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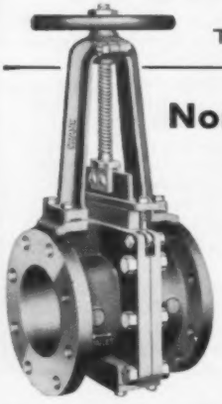

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The Last Word PULP & PAPER Editors' Page

Valuable Tools for Career Guidance

Record-breaking enrollments in schools and colleges this fall offer wider opportunities than ever before for use of information pointing out the career opportunities in this industry.

It seems most likely that another printing of the valuable booklet, *"A Guide to Career Opportunities in the Paper Industry,"* first produced in 1954 by the APPA under a grant from Beloit Iron Works, would be in order. There have been three printings of this booklet and 150,000 copies have been distributed. Last reports available to PULP & PAPER were that only 10,000 copies remained available this fall.

Copies have gone into every state, to three U.S. territories and to seven foreign countries. The booklet is so familiar within this industry, that it hardly seems necessary to discuss its value as a guidance tool for not only schools but for company recruiting and community information.

There is also a 16 mm. color-sound movie available (running time, 21 minutes), likewise produced by APPA under a Beloit Iron Works grant. This film is available on a free loan basis from many major pulp and paper company or mill offices in 20 states, as well as from a great many college or university film libraries or audio-visual centers. There have been 100 prints made and 95 are now in use in 37 states and Sweden.

Many educational and industry leaders have praised it as a specific tool which successfully does a specific job—that of supplementing counseling programs for students.

Right at the moment, industries are not exactly pounding on the doors of colleges to recruit students. But it would be most short-sighted, indeed, to assume that the competition for student recruits in industry is over. Next May and June are not so far away, and long before then, many a youngster, now in doubt, will have decided on his career.

Watch the South for Land Prep Answers

What is the most economic method of land preparation for growing trees?

What kind of land should be prepared, and where is it a waste of money?

These are moot questions in the South. PULP & PAPER editors hear them discussed almost everywhere they go in the pulp and paper domains of Dixie. International Paper Co., Union Bag-Camp, Rayonier (see PULP & PAPER's special story in Feb. issue, page 122), and other big companies are searching for the answer.

These are the methods of land preparation which are being tested:

1. Using V-type cutter blades, shearing off all standing trees and growth, usually at ground level, and windrowing the material with a root rake.
2. Using straight dozer blades and knocking everything over and then piling it in windrows.
3. Following up either of the preceding operations by going over the land with a double disc with harrows. Should you go over the land once or twice?
4. Using a ship anchor chain between tractors and pulling down everything with it. One Southern company reports it is considering using a steel ball in the middle of such a chain to keep the chain above ground slightly, escaping damaging rocks.
5. Leaving some trees and discing only between standing trees.
6. Using a Marden brush cutter behind a tractor to chop up and mulch into the top soil the brush, etc.

Combinations of these above methods are being considered. An experimental machine in the South is a Harvester TD14 tractor with a snorkle V-type blade mounted right on a C-frame. In the back of the machine is a planting machine hooked onto a Drott scarifier bar.

With or after ground preparation, planting or seeding may be done. This opens up another whole field of problems and questions.

What kind of land should be prepared? Companies are making soil tests to find out.

They seem to have decided it is a waste of money to spend money for site prep of sub-marginal lands. There are poor farm lands or wastes that should be growing trees. And vice versa.

Before long the South will come up with some facts and figures to go by. Some companies think they have the answers now. Others are going to do more experimenting. A lot more will be known about site preparation and the best places and methods for it in another year or so and the industry will owe a great debt to the companies now leading the work in this important field.

A Tribute to G. H. Tomlinson

George Herbert Tomlinson had the rare satisfaction in life—a satisfaction that comes to few—of having added permanently to man's industrial skills. The progress of the world in industry has come about through men such as he, who are not only able to be advisers on the use of existing processes, but can, by learning and inventive power, bring new processes into being.

Such achievements of his as the new processes in the manufacture of chemical woodpulp, and the liquification of gases, brought him the medals awarded to those in the world of chemistry who have added significantly to the sum total of human knowledge.

His working life was a long one. Less than a year before his death he retired as vice-president of Howard Smith Paper Mills Ltd. This long working life was to be expected of him, for work to him was the exercise of the mind in the solution of problems. The fascination of that scientific quest was with him to the end, as he served his company as consultant.

He accomplished a fine work, making full and well-judged use of the years of his long life. And through the inventiveness of his mind, he has enlarged and enriched the usefulness to mankind of Nature's raw materials.—From an editorial in the *Montreal Gazette*.

About Paper . . .

Says Chet Huntley, a former University of Washington boy who is now a TV news broadcaster:

"Paper communicates in two ways . . . to the eye . . . to the touch. It may speak with urgency or eloquence. But it is never without a voice."

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